# AGREEMENT

THIS AGREEMENT made and entered into this 23rd day of December, **2021**, by and between ***APPLIED PAVEMENT TECHNOLOGY,*** hereinafter called the Consultant, and the City of Grand Island, Nebraska, hereinafter called the City.

WITNESSETH:

THAT, WHEREAS, in accordance with law, the City has caused agreement documents to be prepared and an advertisement calling for qualification requests to be published, for **2022 Pavement Condition Assessment**; and

WHEREAS, the City, in the manner prescribed by law, has publicly opened, examined, and canvassed the qualifications submitted, and has determined the aforesaid Consultant to be the most qualified, and has duly awarded to the said Consultant an agreement therefore, for the sum or sums named in the Consultant's scope and fee submittal, a copy thereof being attached to and made a part of this agreement;

NOW, THEREFORE, in consideration of the compensation to be paid to the Consultant and of the mutual agreements herein contained, the parties have agreed and hereby agree, the City for itself and its successors, and the Consultant for itself or themselves, and its or their successors, as follows:

ARTICLE I. That the Consultant shall (a) furnish all tools, equipment, superintendence, transportation, and other necessary materials, services and facilities; (b) furnish, as agent for the City, all materials, supplies and equipment specified and required to be incorporated in and form a permanent part of the completed work; (c) provide and perform all necessary labor; and (d) in a good substantial and workmanlike manner and in accordance with the requirements, stipulations, provisions, and conditions of the agreement documents as listed in the original Request for Qualifications, said documents forming the agreement and being as fully a part thereof as if repeated verbatim herein, perform, execute, and complete all work included in and covered by the City's official award of this agreement to the said Consultant, such award being based on the acceptance by the City of the Consultant's submittal;

ARTICLE II. That the City shall pay to the Consultant for the performance of the work embraced in this agreement and the Consultant will accept as full compensation therefore the sum (subject to adjustment as provided by the agreement) of ***ONE HUNDRED THIRTY SIX THOUSAND SIX HUNDRED FIFTY FIVE & 00/100 DOLLARS ($136,655.00)***for all services, materials, and work covered by and included in the agreement award and designated in the foregoing Article I; payments thereof to be made in cash or its equivalent in the manner provided in the General Specifications.

ARTICLE III. The Consultant hereby agrees to act as agent for the City in purchasing materials and supplies for the City for this project. The City shall be obligated to the vendor of the materials and supplies for the purchase price, but the Consultant shall handle all payments hereunder on behalf of the City. The vendor shall make demand or claim for payment of the purchase price from the City by submitting an invoice to the Consultant. Title to all materials and supplies purchased hereunder shall vest in the City directly from the vendor. Regardless of the method of payment, title shall vest immediately in the City. The Consultant shall not acquire title to any materials and supplies incorporated into the project. All invoices shall bear the Consultant's name as agent for the City. This paragraph will apply only to these materials and supplies actually incorporated into and becoming a part of the finished product of **2022 Pavement Condition Assessment.**

ARTICLE IV. That the Consultant shall start work as soon as possible after the agreement is signed and Notice to Proceed has been issued by the City of Grand Island. All work associated with the agreement shall be completed no later than **September 1, 2022 for 2022 Pavement Condition Assessment.**

ARTICLE V. The City of Grand Island, Nebraska operates on a fiscal year beginning October 1st and ending on the following September 30th. It is understood and agreed that any portion of this agreement which will be performed in a future fiscal year is contingent upon the City Council adopting budget statements and appropriations sufficient to fund such performance.

ARTICLE VI. The Consultant agrees to comply with all applicable State fair labor standards in the execution of this agreement as required by Section 73-102, R.R.S. 1943. The Consultant further agrees to comply with the provisions of Section 48-657, R.R.S. 1943, pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska.

ARTICLE VII. During the performance of this agreement, the Consultant and all subconsultants agree not to discriminate in hiring or any other employment practice on the basis of race, color, religion, sex, national origin, age or disability and to comply at all times with all applicable state and federal civil rights acts and executive orders of the President of the United States.

ARTICLE VIII. Every public Consultant and their subconsultants who are awarded an agreement by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

ARTICLE IX. City Code states that it is unethical for any person to offer, give or agree to give any City employee or former City employee, or for any City employee or former City employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, or preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or an agreement or subagreement, or to any solicitation or proposal therefore. It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of a subconsultant under an agreement to the prime consultant or higher tier subconsultant or any person associated therewith, as an inducement for the award of a subagreement or order.

ARTICLE X. The City reserves the right to terminate this agreement at any time upon sixty (60) days notice. If the agreement is terminated, the Consultant will be compensated for any services, not in dispute, rendered to date of termination.

ARTICLE XI. FAIR EMPLOYMENT PRACTICES: Each proposer agrees that they will not discriminate against any employee or applicant for employment because of age, race, color, religious creed, ancestry, handicap, sex or political affiliation.

ARTICLE XII. LB 403: Every public consultant and his, her or its subconsultants who are awarded an agreement by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date and year first above written.

***APPLIED PAVEMENT TECHNOLOGY***

By _____ Date November 16, 2021

Title Vice President

CITY OF GRAND ISLAND, NEBRASKA,

By Roger G. Steele Date 11/23/2021
Mayor

Attest: RaTae Edwards
City Clerk

The agreement is in due form according to law and is hereby approved.

Stacy R Nonhof Date 11/22/21
Attorney for the City

**APPENDIX A – TITLE VI NON-DISCRIMINATION -**

During the performance of this agreement, the consultant, for itself, its assignees and successors in interest (hereinafter referred to as the "consultant") agrees as follows:

(1) **Compliance with Regulations:** The consultant shall comply with the Regulation relative to nondiscrimination in Federally-assisted programs of the Department of Transportation (hereinafter, "DOT") Title 49, Code of Federal Regulations, Part 21, and the Federal Highway Administration (hereinafter "FHWA") Title 23, Code of Federal Regulations, Part 200 as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this agreement.

(2) **Nondiscrimination:** The Consultant, with regard to the work performed by it during the agreement, shall not discriminate on the grounds of race, color, or national origin, sex, age, and disability/handicap in the selection and retention of subconsultants, including procurements of materials and leases of equipment. The consultant shall not participate either directly or indirectly in the discrimination prohibited by 49 CFR, section 21.5 of the Regulations, including employment practices when the agreement covers a program set forth in Appendix B of the Regulations.

(3) **Solicitations for Subconsultants, Including Procurements of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by the consultant for work to be performed under a subagrement, including procurements of materials or leases of equipment, each potential subconsultant supplier shall be notified by the consultant of the consultant's obligations under this agreement and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin, sex, age, and disability/handicap.

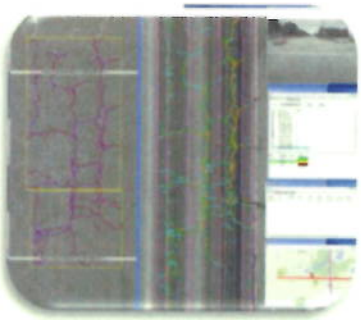
(4) **Information and Reports:** The consultant shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the City of Grand Island or the FHWA to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a consultant is in the exclusive possession of another who fails or refuses to furnish this information the consultant shall so certify to the City of Grand Island, or the FHWA as appropriate, and shall set forth what efforts it has made to obtain the information.

(5) **Sanctions for Noncompliance:** In the event of the consultant's noncompliance with the nondiscrimination provisions of this agreement, the City of Grand Island shall impose such agreement sanctions as it or the FHWA may determine to be appropriate, including, but not limited to:

(a.) withholding of payments to the consultant under the agreement until the consultant complies, and/or
(b.) cancellation, termination or suspension of the agreement, in whole or in part.

(6) **Incorporation of Provisions:** The consultant shall include the provisions of paragraphs (1) through (6) in every subagreement, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto.

The consultant shall take such action with respect to any subagreement or procurement as the City of Grand Island or the FHWA may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, however, that, in the event a consultant becomes involved in, or is threatened with, litigation with a subconsultant or supplier as a result of such direction, the consultant may request the City of Grand Island to enter into such litigation to protect the interests of the City of Grand Island, and, in addition, the consultant may request the United States to enter into such litigation to protect the interests of the United States.



# City of Grand Island, Nebraska

## Pavement Condition Assessment

# Scope and Fee Proposal

applied pavement TECHNOLOGY

**Prepared By:**
Applied Pavement Technology, Inc.
115 W. Main Street, Suite 400
Urbana, IL 61801
217-398-3977
www.appliedpavement.com

October 29, 2021

providing engineering solutions to improve pavement performance

# Scope of Work

Through a qualifications-based selection process Applied Pavement Technology, Inc. (APTech) was selected by the City of Grand Island, Nebraska (City) to complete its 2022 Pavement Condition Assessment. The City is seeking a consultant who can collect pavement condition data compatible with the City's Cartegraph OMS asset management system, load the data into OMS, and possibly work with the City to review current practice and make recommendations for improvements. APTech is well-suited to this effort and has provided this scope and fee proposal to support the services detailed in the City's Request for Qualifications.

## Objectives

The objectives of this work include:

- Collect pavement condition data in general accordance with the FHWA LTPP Distress Identification Manual (FHWA-RD-03-031) and ASTM Standard D6433, *"Standard Specification for Road and Parking Lot Pavement Condition Index."*
- Collect pavement roughness data, reported as International Roughness Index (IRI) in accordance with ASTM Standard E 1926, *"Standard Practice for Computing International Roughness Index of Roads from Longitudinal Profile Measurements."*
- Load distress and IRI data into the OMS TEST database, seek City approval, and ultimately load the data into the City's PRODUCTION OMS database.

In addition to these requirements, optional services may be considered. These include:

- Review of the City's pavement segment data, OMS pavement management configuration, and work history information to provide recommendations for corrections or improvements.
- Conduct an on-site workshop to provide training to City staff in use of Scenario Builder and running up to five budget scenarios.

The following information details the project tasks and deliverables to meet these objectives. The estimated costs follow the task descriptions.

## Task 1 – Project Initiation and Management

Upon receiving the authorization to proceed, APTech will promptly schedule a virtual kick-off meeting with City project staff. The topics discussed during this meeting will include:

- An introduction to the project team
- Review of the roles and responsibilities of project staff
- Key project milestones
- Identification of the technical information the project team requires to begin the project. The RFQ states that the City will provide a file geodatabase containing a pavement segment feature class and associated attributes. This is key information for the work effort, as is access to the City's OMS TEST database.
- Review of project deliverables.

APTech will facilitate discussions so that the City's expected outcome for each project task is clearly understood and documented. Other key items that will be discussed include potential data collection start dates, public safety during data collection, and scheduling regular project update meetings.

With the City's permission, APTech will help prepare a press release to distribute to residents and local media. This press release will provide information about the data collection vehicles that will drive on the City's roads to collect data and will share information about the positive impact the project will have on the community.

Task 1 Deliverables

1. A memo summarizing the outcome of the kick-off meeting will be delivered to the City within 5 days from the end of the kick-off meeting. The memo will include a project point-of-contact list, project timeline, and agreed-upon goals and objectives. Following comments, this will be delivered as a final memo.
2. A draft press release document will be delivered to the City within 5 days from the end of the kick-off meeting and will be followed by a final press release once comments from the City are incorporated into the draft.

## Task 2 – Network Review

APTech will review the City roadway inventory and shapefile to identify any information and map gaps that exist. The City noted that previous data collection efforts included detailed network reviews and segmentation by others, so minimal effort is expected here. APTech's review will focus on the information required for data collection. If issues are noted they will be coordinated with the City.

If optional pavement management services are approved, APTech will perform a more comprehensive review of the OMS database. This will include a review of segmentation, configuration items (e.g., pavement families, performance models, treatment strategies), historical pavement condition information, and construction history. APTech will prepare a written review summary containing recommendations for necessary changes.

Task 2 Deliverables

1. Data collection routing.
2. A memo summarizing the results of the OMS database review (if optional services are approved).

## Task 3 – Pavement Condition Assessment

Pavement condition data collection requires that roads be clear, dry, and free of ice, snow, and salt residue (if used). APTech will monitor weather conditions and coordinate road conditions with the City and will schedule data collection once environmental conditions appear supportive of successful completion.

According to information provided by the City, the public road network currently consists of 3,420 pavement segments totaling 322.67 miles (181.19 concrete miles, 124.59 asphalt miles, 14.5 gravel miles, and 1.45 brick miles). APTech will use its Enhanced Data Gathering Equipment (EDGE) data collection vehicle to gather roadway data on all paved City roads

(concrete and asphalt). Our typical approach to network data collection is to collect data for one lane, one direction on two-lane roadways, and one lane each direction on roads with more than two lanes and divided roads. The City noted that there is a desire to collect data consistently with past data collection efforts to maintain segmentation and data integrity in their OMS database. In some cases, roads have been handled in two passes for one segment, which will need to be coordinated with the City to ensure that summarized data is consistent with past efforts. Based on available information our proposed costs assume 307 lane miles of data collection (asphalt and concrete roads). Should the lane miles of data collection vary from this assumption there may be an impact on costs. Collection of 307 lane miles will require approximately 8 days.

The EDGE is not well suited to collect condition data on brick or gravel roadway surfaces. If desired we can collect ROW imagery on these roads, but laser-based measurements are not particularly meaningful on these surfaces. This will be discussed with the City in negotiations to determine the City's desires in this regard.

The technical details for APTech's EDGE (shown in figure 1) were provided in the proposal response and are not repeated here in detail. In summary, APTech's EDGE data collection vehicle is equipped to provide 3D imagery, Class 1 profile, and high-definition ROW imagery, meeting the needs of this data collection effort.

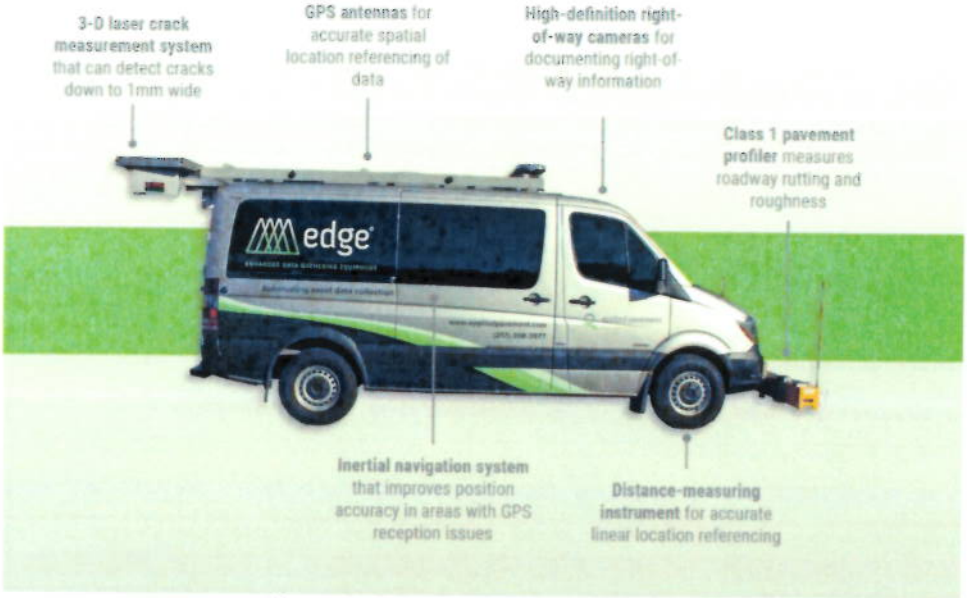



Figure 1. EDGE vehicle capabilities.

APTech will follow its quality control and calibration processes to make sure that all collected data is secure and accurate. APTech will calibrate the EDGE prior to starting the data collection in the City. APTech uses two EDGE operators in the vehicle so that one can focus on driving while the other reviews data as it is being collected. Daily equipment checks and real-time data review dramatically reduce the possibility of collecting bad data and allows for immediate

corrective action should any issues be identified. At least three copies of all collected data will be stored securely to mitigate any risk of data loss.

The EDGE will be made available for a demonstration to City staff and invited guests prior to or during data collection so that the City can review our state-of the-art equipment.

After completing the field data collection, APTech will start the data processing phase to summarize pavement distress information for loading into OMS.

Pavement Data Processing

APTech will use a combination of automated distress detection and trained inspection technicians to perform the pavement inspection of City roads. Distress identification algorithms will provide initial pavement distress identification. These algorithms have been developed by APTech for accurate determination of pavement distress based on the ASTM D6433 standards.

After the preliminary automated distress identification, trained APTech pavement inspection technicians will review images to verify distresses have been correctly identified. The use of automated distress detection greatly increases our process efficiency while the review of the data by trained inspectors ensures that pavement distresses have been identified based on the ASTM D6433 standards.

As an additional quality control measure, APTech senior engineers will perform a Quality Assurance inspection on a subset of City pavement inspection data to verify that inspections were completed properly. APTech firmly believes that the quality of the distress data is paramount and makes every effort to ensure that it will provide a foundation for informed decision making.

After the completion of the pavement distress survey, APTech will load all pavement distress and profile data into the OMS TEST database in coordination with the City's GIS Coordinator. Should review by the City identify any issues with the data, APTech will make corrections within the City's TEST database. Once the City accepts the pavement condition data, APTech will load the data into the City's PRODUCTION database. As a preferred Cartegraph partner, APTech has completed training in data loading and has successfully completed this for several agencies. OMS will use imported distress and IRI data to calculate Overall Condition Indices (OCI) for each road segment.

Task 3 Deliverables

1. A memo confirming the data collection start date and the time of EDGE vehicle demo to City staff at least 15 days prior to commencement of data collection.
2. ROW imagery collected every 20 feet, in JPEG format, and with a stand-alone viewing tool that organizes imagery and allows viewing to simulate a virtual field trip.
3. Import of pavement distress data into the TEST OMS database.
4. After approval by the City, import distress data into the PRODUCTION OMS database.

### Task 4 – Report

APTech will provide the City with a summary report at the conclusion of the project. Contents of the report are expected to include:

- An overview of the work completed
- A summary of current network makeup and condition, and OMS-generated performance predictions in the future
- Map graphics displaying the network and conditions

The report will be provided to the City in electronic format for review. APTech will incorporate City comments in the production of a final report that will be provided to the City in both printed and electronic format.

## Optional Pavement Management Services

### Task 5 - Review of OMS Configuration

This item was discussed previously in the summary for Task 2. If the City opts for this work, it is important to complete this effort early in the process so that improvements can be considered and possibly made as part of this work effort. This task provides a location for an estimate level of effort and cost.

### Task 6 – On-Site Workshop

APTech proposes to conduct an on-site workshop focused on training City staff to properly configure OMS for analyses and using Scenario Builder to complete analyses. APTech has provided this training for other agencies, including creation of training materials that were provided to the agencies as reference manuals. The proposed outcome of the workshop will be a demonstration by City staff successfully completing multiple scenarios, which includes:

- **Backlog elimination**: estimates annual budgetary requirement to complete all recommended work based on the pavement maintenance and rehabilitation policy and decision tree.
- **Maintain condition:** estimates annual budgetary requirement to maintain the current pavement condition.
- **Target condition**: estimates annual budgetary requirements to reach a pre-determined target pavement condition.
- **Current budget**: estimates annual average City pavement condition as a result of the current budget.
- **Safety maintenance only**: estimates annual average City pavement condition if no major maintenance and rehabilitation work is performed.

It is assumed that the City will provide a training facility suited to the task and computers with access to the City's TEST (or other suitable) database for this task.

Task 5 Deliverables

1. Completion of an on-site training workshop in which City staff demonstrate the ability to perform analyses using Scenario Builder.

2. A reference document of the analysis process to be used both during training and as a resource after training.

## Schedule

The City has acknowledged that time is of the essence on this project, and that they intend to use the results of this condition update in work planning for 2023. To do that work will need to be completed by the end of September 2022. APTech is committed to meeting this stated requirement, contingent on roadway conditions suitable for data collection. We reasonably expect roads to be available for surveys in late April or early May. Should there be weather delays that preclude starting surveys at this time it may impact the final schedule, but we will make every effort to complete the effort by the end of September 2022 as desired by the City.

## Cost Estimate

Table 1 summarizes APTech's proposed fees for this work effort. Costs are considered lump sum, not-to-exceed values (considering previous stated assumptions of survey mileage and coverage) and will not be exceeded without prior coordination with and approval by the City.

Table 1. Summary of estimated costs for Grand Island 2022 Pavement Condition Assessment.

| Task | Activity | Cost |
|---|---|---|
| 1 | Project Management | $4,300 |
| 2 | Network Review | $2,260 |
| 3 | Pavement Condition Assessment and Loading | $104,593 |
| 4 | Reporting | $2,184 |
| **Subtotal Without Optional Tasks** | | **$113,337** |
| 5 (Optional) | Configuration Review and Recommendations | $9,600 |
| 6 (Optional) | Workshop | $13,718 |
| **Total All Tasks** | | **$136,655** |

STATEMENT OF QUALIFICATIONS

# 2022 Pavement Condition Assessment

## City of Grand Island, Nebraska


PREPARED BY

Applied Pavement Technology, Inc.
115 West Main Street, Suite 400
Urbana, Illinois 61801
(217) 398-3977
www.appliedpavement.com


SEPTEMBER 2021

applied pavement TECHNOLOGY

September 2, 2021

Mr. Keith Kurz, Assistant Public Works Director
City of Grand Island
City Hall, 100 East First Street
P.O. Box 1968
Grand Island, NE 68808-1968

RE: **Request for Qualifications (RFQ) for the Public Works Department 2022 Pavement Condition Assessment**

Dear Mr. Kurz,

On behalf of Applied Pavement Technology, Inc (APTech), I am pleased to submit this statement of qualifications (SOQ) demonstrating the team's interest in supporting the City of Grand Island with a Pavement Condition Assessment. APTech is a civil engineering firm with offices in Illinois, Nevada, Washington, and Wisconsin. APTech fully understands both the process and requirements outlined in the RFQ and is committed to providing exceptional service to Grand Island. This SOQ introduces the APTech team, which will execute this project from its headquarters in Urbana, Illinois, and summarizes the company's qualifications and relevant experience. As a civil engineering company, APTech brings:

**Condition data collection equipment and expertise.** State-of-the-art equipment and trained condition surveyors to record distress data for the City's 323-mile network.

**Highly trained engineers.** APTech has over forty engineers and technicians trained in Pavement Condition Index (PCI) procedures. APTech is a preferred partner with Cartegraph and has implemented and updated multiple agency systems in the past year.

**Relevant project experience supporting the needs of cities like Grand Island.** APTech assists public agencies with the analysis and use of roadway network data to make data-driven, performance-based decisions. We work collaboratively with cities and agencies to prepare and deliver the guidance needed for long-term planning and budgeting.

APTech's proposed Project Manager, Mark P. Gardner, P.E., is a Program Director with 38 years of pavement engineering and management experience. His expertise in managing projects and assisting local agencies with pavement management is well suited for this effort. He may be contacted at mgardner@appliedpavement.com. If you have any questions, please do not hesitate to reach out. Applied Pavement Technology's contact information is provided below:

Applied Pavement Technology, Inc
115 W. Main Street, Suite 400
Urbana, IL 61801
Phone: 217-398-3977
Fax: 217-398-4027

Sincerely,
Applied Pavement Technology, Inc

David G. Peshkin, P.E Chief Engineer I Vice President


# Statement of Qualifications

applied pavement TECHNOLOGY

Applied Pavement Technology, Inc. (APTech) is a full-service engineering consulting firm founded in 1994 that assists agencies with the design, evaluation, maintenance, and rehabilitation of roadway and airport pavements. APTech is headquartered in Urbana, Illinois, with additional offices in Shorewood, Illinois; Waunakee, Wisconsin; Spokane, Washington; and Reno, Nevada.

Specific qualifications germane to the performance of this project for the City of Grand Island (City) include the following:

- APTech is a preferred Cartegraph partner and has updated or implemented Cartegraph for multiple agencies. This work recently has included collection and loading of condition data for the City of Miami, Florida; Knox County, Tennessee; Kane County, Illinois; and Yavapai County, Arizona. APTech staff completed training at Cartegraph's headquarters that focused on data loading and has completed this work for multiple clients.
- APTech owns and operates a Laser Crack Measurement System (LCMS)-equipped data

collection vehicle for automated pavement data collection. The van includes a road surface profiler and multiple Right-of-Way (ROW) cameras. All data is spatially located using an on-board GPS antenna and an inertial navigation unit.
- APTech has provided training to multiple agencies (all of those listed in the first bullet item above) in using Scenario Builder for budget scenario analyses.
- APTech has helped several agencies configure Operations Management System (OMS) with performance models and treatment strategies resulting in improved analysis results. As such, APTech staff are well qualified to review OMS analysis settings and provide recommendations for improvement.

In short, APTech has successfully performed the specific duties requested by the City for others and stands ready to assist the City of Grand Island with this effort.

APTech supports Pavement Management System (PMS) implementations and updates for clients with varying levels of experience and diverse program needs. Clients, such as Urbana, Illinois; Champaign, Illinois; and Kane County, Illinois trusted APTech to implement and update their PMS, resulting in better utilization of available funding for road programs. Other clients like Portland, Oregon and Washington County, Oregon hired APTech to perform objective assessments of their programs, resulting in improved pavement management practices and more efficient use of public resources. Still other clients, such as Rockford, Illinois and Fort Wayne, Indiana trusted the firm's capabilities in condition data collection, hiring APTech to provide pavement condition data on which they based their decisions. In addition, APTech has assisted the Illinois DOT in statewide pavement condition data collection for over nine years. APTech supports agencies with information and guidance so that they can make informed, data-driven, performance-based decisions about the management of their transportation assets.

APTech's qualifications are exemplified by the breadth and diversity of related project experience. As highlighted in figure 1, APTech delivers pavement engineering excellence to clients across the United States. The geographic diversity and span of experience offers the City a unique opportunity to work with an accomplished firm while tapping into the experiences and knowledge base developed over decades of meeting a broad range of clients' unique needs. APTech values its client relationships and works closely with them to understand needs and find innovative solutions.

| APTech Staffing | |
|---|---|
| Number of Employees | 62 |
| Civil Engineers | 38 |
| Technicians | 10 |
| Administrative | 14 |
| Registered Professional Engineers | 23 |
| Engineers with Advanced Degrees | 22 |
| Trained in the PCI Procedure | 40 |
| Trained in PAVER | 30 |

The following agencies, many of which are repeat clients, are among APTech's current and recent past city and county pavement management clients:

- Urbana, Illinois
- Champaign, Illinois
- University of Illinois
- Rockford, Illinois
- Kane County, Illinois
- Village of Godfrey, Illinois
- Peoria, Illinois
- Williamson County, Illinois
- Jonathan Creek Township, Illinois
- Chicago Metropolitan Agency for Planning
- Cave Creek, Arizona
- Gila Bend, Arizona
- Bozeman, Montana
- Goodyear, Arizona
- Yavapai County, Arizona
- Fort Wayne, Indiana
- Miami, Florida
- Newcastle, Washington
- Washington County, Oregon
- Portland, Oregon
- Clackamas County, Oregon
- Henderson, Nevada
- Carson City, Nevada
- Knox County, Tennessee
- Bastrop, Texas

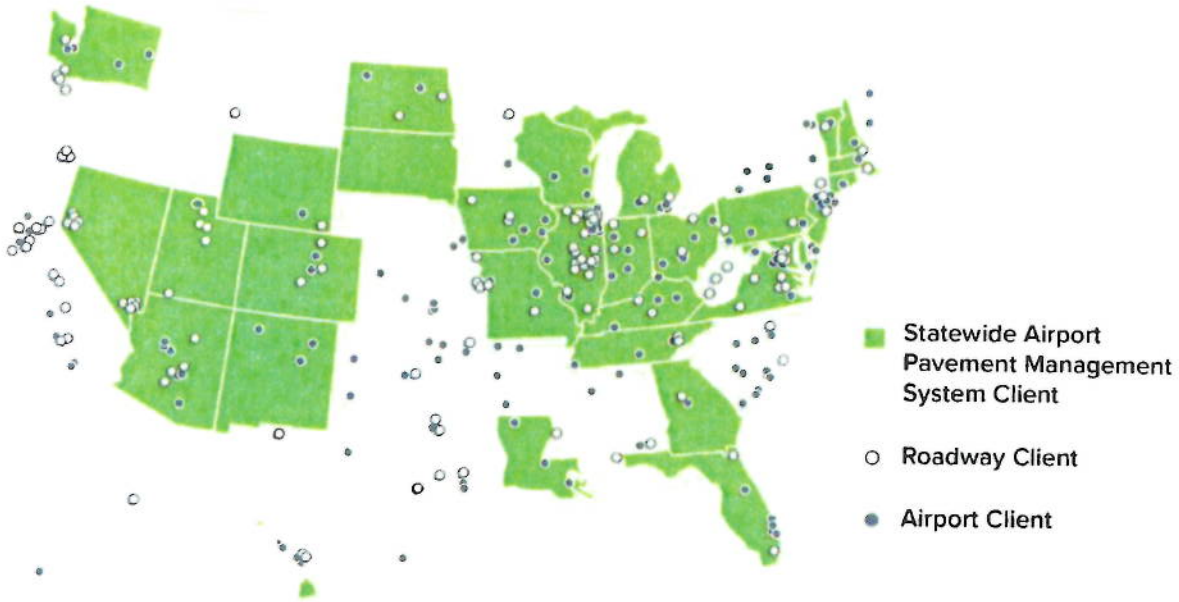



*Figure 1. APTech's pavement management and evaluation clients.*

# Similar Projects

### KNOX COUNTY, TENNESSEE PMS IMPLEMENTATION

In 2019, the Knox County Government contracted the APTech team to collect automated condition data for about 1600 lane miles of county roads, along with supporting the implementation of the Cartegraph Operations Management System (OMS) software. The team collected and loaded the condition data, established treatment strategies, developed performance models, and assisted in running multi-year maintenance and rehabilitation (M&R) scenarios. Condition data for the County's 1600 miles of roads was collected using APTech's EDGE data collection van. APTech summarized the data in accordance with the provisions of ASTM D6433 and loaded it into OMS. APTech configured the software with treatment strategies and performance models representative of the County's practice. APTech provided Scenario Builder training to the County to perform budget analyses and provided them with the ability to create work needs projections.

### KANE COUNTY, ILLINOIS PMS IMPLEMENTATION

For years, the Kane County Department of Transportation used Illinois' Condition Rating System (CRS) and a proprietary PMS to manage their roadway network. After experiencing difficulties updating the system, the County decided to switch to a newer

asset management tool, expanding on their existing relationship with Cartegraph. The County hired APTech to manage the effort and work collaboratively with Cartegraph to successfully implement OMS and train the County in its use.

Beginning in 2019, APTech's work with the County included collecting condition data for the County's 350 miles of roads using APTech's EDGE van and summarizing the data as PCI values. OMS was configured with treatment strategies and performance models that were representative of County practice. APTech provided training to the County on the use of Scenario Builder to perform budget analyses and create work needs projections. APTech used historical condition data to assess treatment effectiveness and helped the County decide which treatments were providing acceptable cost/benefit. Finally, asset information was extracted from ROW imagery to update the County GIS with more complete data

The County now has the capability to perform budget scenario analyses and can produce clear presentation graphics for interaction with decision makers—a key objective of the project.

## CITY OF MIAMI, FLORIDA PAVEMENT CONDITION ASSESSMENT AND PAVEMENT MAINTENANCE BUDGET ANALYSIS

APTech supported Cartegraph in the implementation of OMS for pavement management, collection of condition data for the City's 700 centerline miles using the EDGE, configuration of the PMS, and performance of budget scenarios to determine capital improvement and roadway pavement maintenance budget needs The City of Miami was eager to move to data-driven, informed decision making instead of planning for transportation asset needs reactively. The work completed by Cartegraph and APTech in 2019 supported this goal.

As part of this effort, APTech completed the automated data collection for all City streets and assisted the City with development of pavement family definitions, along with the development of treatment protocols and performance models for each defined family. APTech performed a budget scenario analysis using Scenario Builder and supported agency training for updates to treatment protocols and use of Scenario Builder to perform PMS analyses.

As a result of this work, the City of Miami is now able to project work needs and network conditions into the future, provide information to decision makers about the impact of budget adjustments, and improve their maintenance and preservation practices to make more effective use of limited resources.

## YAVAPAI COUNTY, ARIZONA PMS UPDATE

Yavapai County, Arizona hired APTech to collect condition data on about 800 centerline miles of county roads, recording the type, severity, and extent of distress in accordance with ASTM D6433 and loading that data into OMS. The County also asked that APTech review their performance models and treatment strategies to identify where improvements might be possible. APTech worked closely with the County to review treatment approaches it had used and considered other options that would make more effective use of County resources. APTech provided recommendations and, after County approval, configured OMS with optional treatment protocols that would allow comparison of different approaches in budget scenarios. APTech loaded the updated condition data into the OMS database for County use in planning and budgeting

# Key Personnel

APTech's Local Municipalities and Private Agencies group will complete this work. This staff has overseen the collection of thousands of miles of condition data for clients and helped them use that data to plan maintenance and rehabilitation needs and inform decision makers. Mr. Mark Gardner is APTech's Program Director for Local Municipalities and Private Agencies group and will be project manager for any work that the City needs completed. He has 38 years of pavement engineering experience and will be responsible for the daily management of all project work. He will serve as the primary point of contact with the City.

The following biographies provide further introduction to the key personnel for APTech's team. Additional members have been identified for this project and resumes can be found in Appendix A. This team has been carefully chosen for their pavement data collection and management experience; specifically in automated data collection, condition surveys, and data processing. Additional information is provided in the following brief biographies identifying their relevant technical expertise.

## DAVID PESHKIN

### Principal-In-Charge

Mr. Peshkin is the Chief Engineer and one of the founders of APTech. He has extensive experience in pavement evaluation, design, preservation, maintenance, and rehabilitation techniques. He has been instrumental in nationwide pavement evaluation projects, examining pavement performance and modeling, and developing rehabilitation recommendations. He has also played a leading role nationwide in research and training on pavement preservation. Mr. Peshkin has served as the Principal for countless roadside pavement management projects and oversees the delivery of services and reports to clients to uphold APTech's high standards of quality. For this project, Mr. Peshkin will oversee any project work and assure APTech's commitment to quality is maintained.

## MARK GARDNER

### Project Manager

Mr. Gardner has 38 years of pavement engineering, management, and condition data collection experience. He will be responsible for day-to-day project activities and will be the primary point of contact for the City. Mr. Gardner's recent experience includes collecting and reporting pavement condition information for the cities of Urbana, Illinois; Champaign, Illinois; Rockford, Illinois; Fort Wayne, Indiana; Miami, Florida; Kane County, Illinois; Knox County, Tennessee; and several others. Mr. Gardner's career has focused on collection of quality condition data for agency use in making decisions. He will be responsible for the overall management of the project, overseeing the technical aspects, and responding to key questions and concerns.

## LUIS SIBAJA

### Pavement Management Engineer

Mr. Sibaja is an Engineering Associate at APTech with 6 years of experience with the company. Mr. Sibaja's primary responsibilities include conducting PCI inspections, updating and customizing PMS databases, comparison analyses of treatment strategies, generating pavement management plans, and developing project reports. Over the last three years he has also taken on assignments involving construction coordination, inspection, and quality assurance of pavement maintenance and rehabilitation projects. For this project, Mr. Sibaja will assist in coordinating automated condition survey data collection and processing for use in the City's PMS. Mr. Sibaja's relevant experience includes pavement management support for Carson City, Nevada; Champaign, Illinois; Newcastle, Washington; and Glenwood Springs, Colorado.

# Subconsultants

APTech is both staffed and equipped to complete the project without the services of a subconsultant.

# Project Schedule and Approach

APTech stands ready to begin work on the City's pavement condition assessment within 30 days after the Notice-To-Proceed (NTP) has been issued and to continue working diligently until all tasks have been completed according to the specified scope and satisfaction of the City's project and contract managers. The following section describes the team's approach to completing each proposed task in the scope of work and providing the associated deliverables.

# Required Services

## TASK 1 – PROJECT INITIATION AND MANAGEMENT

Upon receiving the authorization to proceed, APTech will promptly schedule a virtual kick-off meeting with the City project staff. The topics discussed during this meeting include an introduction to the project team, review of the roles and responsibilities of project staff, key project milestones, and identification of the technical information the project team requires to begin the project. The RFQ states that the City will provide a file geodatabase containing a pavement segment feature class and associated attributes. This is key information for the work effort, as is access to the City's OMS TEST database.

APTech will facilitate discussions so that the City's expected outcome for each project task is clearly understood and documented. Other key items that will be discussed include potential data collection start dates, public safety during data collection, and scheduling a regular project update meeting.

With the City's permission, APTech will help prepare a press release to distribute to residents and local media. This press release will provide information about the data collection vehicles that will drive on the City's roads to collect pertinent data and will share information about the positive impact the project will have on the community. We believe that this simple task helps promote City efforts to efficiently meet community needs. In our experience, this is a small effort that generally pays big dividends in public relations.

### Task 1 Deliverables

1. A memo summarizing the outcome of the kick-off meeting will be delivered to the City within 5 days from the end of the kick-off meeting. The memo will include a project point-of-contact list, project timeline, and agreed-upon goals and objectives. Following comments, this will be delivered as a final memo.
2. A draft press release document will be delivered to the City within 5 days from the end of the kick-off meeting and will be followed by a final press release once comments from the City are incorporated into the draft.

## TASK 2 – NETWORK REVIEW

APTech will complete a comprehensive review of the City roadway inventory and roadway shapefile

to identify any information and map gaps that exist. If changes are necessary, appropriate, and approved by the City, APTech will coordinate information updates with the City. The updated shapefile will be submitted to the City for approval before it is used to prepare the data collection map. Any changes and adjustments requested by the City will be incorporated prior to the commencement of data collection.

If optional pavement management services are approved, APTech will review the OMS database in detail. This will include a review of segmentation, configuration items (e.g., pavement families, performance models, treatment strategies), historical pavement condition information, and construction history. APTech will prepare a written review summary containing recommendations for necessary changes.

### Task 2 Deliverables

1. An updated road inventory list.
2. An updated roadway network shapefile.
3. A memo summarizing the results of the OMS database review (if optional services are approved).

## TASK 3 — PAVEMENT CONDITION ASSESSMENT

APTech routinely uses our EDGE data collection vehicle to gather roadway data, perform pavement condition assessments, and develop ROW asset inventories.

APTech's EDGE (shown in figure 2) is equipped with state-of-the-art GPS antennas so that all data collected is accurately georeferenced. The EDGE's inertial navigation unit allows it to maintain accurate location and georeferenced information even if the primary GPS antennas lose signal for short periods of time (when driving around tall buildings or forested areas). Below are some of the notable specifications of the EDGE that make it the best data collection vehicle for Grand Island.

- The EDGE uses a georeferenced high-definition 4-camera imaging system to collect ROW imagery (downward, forward, left, and right shoulder) every 20 feet. The imagery has a location accuracy of at least ± 1 meter (3.3 feet). Collected imagery is in JPEG format and will be delivered with a stand-alone viewing tool that allows City staff to take virtual drives from the safety of the office.
- The EDGE uses a downward-facing, 3D laser imaging system to collect continuous high-definition scans of the pavement. These scans produce extremely high-quality pavement imagery with enough resolution to confidently identify a 1mm (0.04 inch) wide crack.

The EDGE uses an accredited Class-1, 5-laser road surface profiler to measure International Roughness Index (IRI) and rutting in both wheel paths according to applicable AASHTO and ASTM standards.

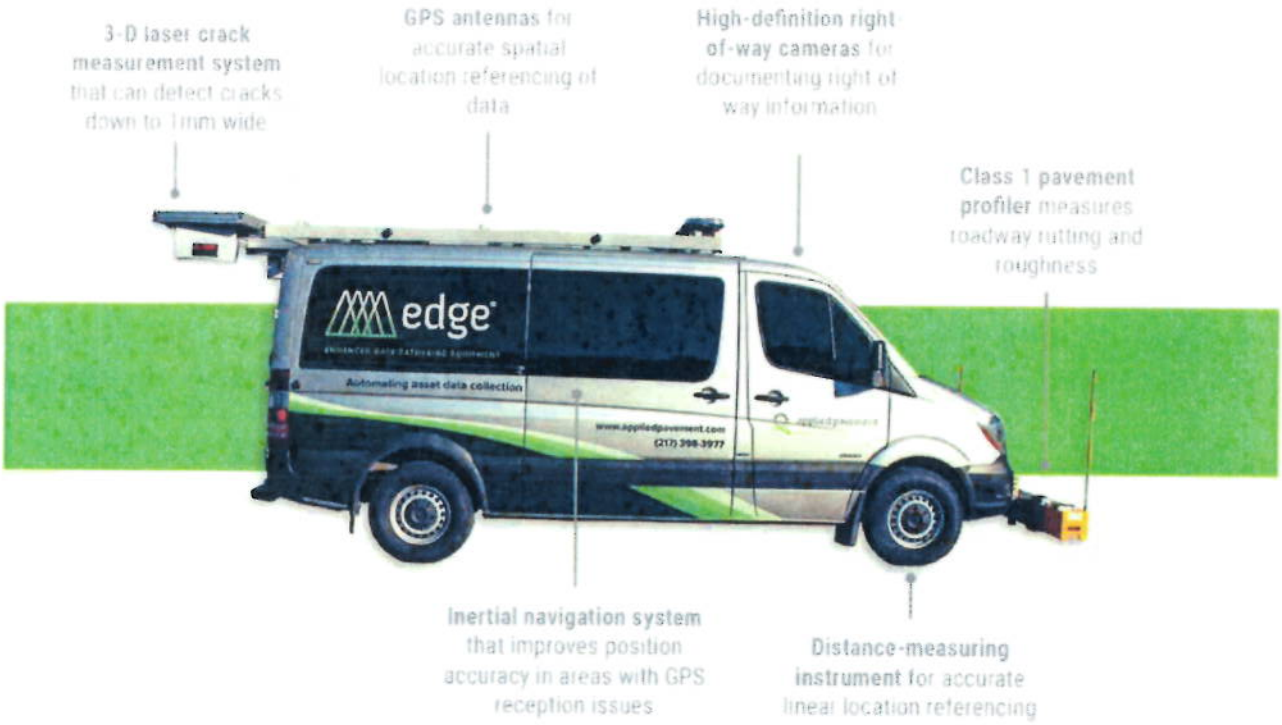



*Figure 2. EDGE vehicle capabilities*

APTech will deploy the EDGE data collection vehicle to gather comprehensive pavement condition data on all paved City roads. The EDGE collects data while safely traveling at posted speed limits and causing no interruption to normal vehicle and pedestrian traffic flow.

APTech has an extensive quality control and calibration process to make sure that all collected data is secure and accurate. APTech will calibrate the EDGE prior to starting the data collection in the City. The EDGE will also be made available for a demonstration to City staff and invited guests prior to the commencement of data collection so that the City can review our state-of-the-art equipment (if desired). APTech uses two EDGE operators in each vehicle so that one can focus on driving while the other reviews data as it is being collected. Daily equipment checks and real-time data review dramatically reduce the possibility of collecting bad data and allows for immediate corrective action should any issues be identified. At least three copies of all collected data will be stored securely to mitigate any risk of data loss.

After the completion of field data collection, APTech will start the data processing phase to determine pavement distresses and extract ROW asset data.

### Pavement Data Processing

To maximize efficiency and accuracy for the benefit of Grand Island, APTech will use a combination of automated distress detection and certified pavement inspection technicians to perform the pavement inspection of City roads. APTech will leverage artificial intelligence and advanced pavement distress identification algorithms for preliminary pavement distress identification. These algorithms have been developed by APTech for accurate determination of pavement distress according to the ASTM D6433 standards.

After the preliminary automated distress identification, trained and certified APTech pavement inspection technicians will review images to verify distresses have been correctly identified and measured. The use of automated distress detection greatly increases our process efficiency while the review of the data by trained inspectors ensures that pavement distresses have been identified according to the ASTM D6433 standards.

As an additional quality control measure, APTech senior engineers will perform a Quality Assurance inspection on a subset of City pavement inspection data to verify that inspections were completed successfully and according to the ASTM D6433 standards. APTech firmly believes that the quality of the distress data is paramount and makes every effort to ensure that it will provide a foundation for informed decision making. After the completion of the pavement distress survey, APTech will load all pavement distress and profile data into the OMS software. As a preferred Cartegraph partner, APTech has completed training in data loading and has successfully completed this for a number of other agencies. OMS will use imported distress and IRI data to calculate Overall Condition Indices (OCI).

### Task 3 Deliverables

1. A memo confirming the data collection start date and the time of EDGE vehicle demo to City staff at least 15 days prior to commencement of data collection.
2. ROW imagery collected every 20 feet, in JPEG format, and with a stand-alone viewing tool that organizes imagery and allows viewing to simulate a virtual field trip.
3. Import of pavement distress data into the TEST OMS database.
4. After approval by the City, import distress data into the PRODUCTION OMS database.

# *Optional Pavement Management Services*

### TASK 4 — REVIEW OF OMS CONFIGURATION

This item was discussed previously in the summary for Task 2. We propose that it is important to complete this effort early in the process so that improvements can be considered and possibly made as part of this work effort if desired. This task provides a location for an estimate level of effort and cost.

### TASK 5 — ON-SITE WORKSHOP

One of the primary benefits of a functional pavement management program is the ability to perform budget scenario analyses. These might include analyses of budget change impacts or determination of needs over a given timeframe. After the completion of the pavement data load and review of the OMS configuration, APTech will conduct an on-site workshop focused on training City staff to properly configure OMS for analyses and using Scenario Builder to complete analyses. APTech recently completed such workshops for Knox County, Tennessee and the City of Miami, Florida, among others. APTech created training materials that were provided to the agencies as reference manuals. The proposed outcome of the workshop will be a demonstration by City staff successfully completing multiple scenarios, which includes:

- **Backlog elimination:** estimates annual budgetary requirement to complete all recommended work based on the pavement maintenance and rehabilitation policy and decision tree.
- **Maintain condition:** estimates annual budgetary requirement to maintain the current pavement condition.
- **Target condition:** estimates annual budgetary requirements to reach a pre-determined target pavement condition.
- **Current budget:** estimates annual average City pavement condition as a result of the current budget.
- **Safety maintenance only:** estimates annual average City pavement condition if no major maintenance and rehabilitation work is performed.

### Task 5 Deliverables

1. Completion of an on-site training workshop in which City staff master the ability to perform analyses using Scenario Builder.
2. A reference document of the analysis process to be used both during training and as a resource after training.

## PROJECT SCHEDULE

The RFQ document states an anticipated selection schedule culminating in issuance of a notice to proceed on or about October 13, 2021. Later in the same document an estimated project schedule shows data collection in Spring/Summer 2022 and an evaluation in Summer/Fall 2022. APTech has the equipment and staffing availability to meet this schedule. We propose to prepare for data collection and completion of the OMS review (if approved) during the winter months so that we are ready to complete data collection as soon as the weather allows. It is important to note that successful automated condition data collection requires that roads be dry and free of debris. We estimate that field data collection will require about 9 working days to complete. APTech will do this in one trip. Table 1 provides a proposed schedule summary by task. Revisions to this schedule will be considered pending weather conditions and project progress.

*Table 1. Proposed timeline for Pavement Condition Assessment tasks.*

| Task | Activity | Time Frame |
|---|---|---|
| 1 | Project Initiation and Management | NTP—June 2022 |
| 2 | Network Review | November 2021 |
| 3 | Pavement Condition Assessment | March 2022—June 2022 |
| 4 (Optional) | OMS Configuration Review | November--December, 2021 |
| 5 (Optional) | Workshop | June 2022 |

# References

As requested in the RFQ, the following are references that the City may contact. APTech is proud of the work performed for these clients and encourages the City to reach out to them for additional information.

KNOX COUNTY TENNESSEE

Jay Garrison, Procurement Coordinator
Knox County Government
jay.garrison@knoxcounty.org
865-215-5767

YAVAPAI COUNTY ARIZONA

Chris Steele, Senior Engineer Design Manager
Yavapai County, AZPublic Works
chris.steele@yavapai.us
928-771-3183

KDOT DIVISION OF TRANSPORTATION

Carl Schoedel, Kane County Engineer
Kane County Department of Transportation
schoedelcarl@co.kane.il.us
630-584-1170

Cartegraph

Mitch Bradley
Cartegraph
mitchbradley@cartegraph.com
800-688-2656

# Insurance

APTech carries the necessary insurance to fulfill any contract obligations that may arise from the selection of this proposal. Of note, Commercial General Liability Insurance, Automobile Liability Insurance, Workers' Compensation and Employers' Liability Insurance, and Professional Liability are all carried by APTech. For a full overview of the coverage, please see Appendix B at the end of the proposal.

# Fees

This section contains a summary of the APTech team's proposed fees for this work effort shown in table 2. In keeping with the requirements of this RFQ, APTech has assumed a 9-month performance period for the base, which is estimated to run from October 13, 2021 through June 2022. This performance period is impacted by the winter months when data collection may not occur due to snow and ice

*Table 2. Summary of estimated costs for Grand Island 2022 Pavement Condition Assessment.*

| Task | Activity | Estimated Cost |
|---|---|---|
| 1 | Project Management | $4,300 |
| 2 | Network Review | $3,760 |
| 3 | Pavement Condition Assessment and Loading | $104,593 |
| **Subtotal Without Optional Tasks** | | **$112,653** |
| 4 (Optional) | Configuration Review and Recommendations | $9,600 |
| 5 (Optional) | Workshop | $13,718 |
| **Total All Tasks** | | **$135,971** |

# Miscellaneous

APTech does not have any exceptions to the submittal requirements of this RFQ.

# Appendix A: Resumes

# David G. Peshkin, P.E.

*Chief Engineer*

*Education*

M.S., Civil Engineering, University of Illinois, 1987

B.S., Civil Engineering, University of Illinois, 1986

B.A., History, Swarthmore College, Pennsylvania, 1977

*Professional Registration*

Professional Engineer, Illinois, 1991; also Delaware, Georgia, Maine, Massachusetts, Michigan, Nevada, New Hampshire, New York, North Carolina, North Dakota, Oklahoma, Rhode Island, Texas, Vermont, Virginia, and Washington

## INTRODUCTION

Mr. Peshkin is a Vice President and Chief Engineer of Applied Pavement Technology, Inc. (APTech) with 35 years of pavement engineering experience. His technical efforts focus on the following areas: pavement management; pavement evaluation and design; technology transfer for pavement design, maintenance, and rehabilitation; forensic engineering and expert witness; and pavement research.

Mr. Peshkin is actively involved in roadway pavement management, evaluation, and design. He provides pavement condition data to clients in a clear and understandable format to promote data-driven decision making in support of performance-based programs. These projects include collecting pavement distress data through automated and manual methods and reporting pavement condition ratings according to the Pavement Condition Index (PCI) and Pavement Surface Evaluation and Rating (PASER) methods. He works closely with the Illinois Department of Transportation (DOT) to monitor the condition of the state-maintained pavements. He is currently serving as the Project Manager for the Illinois DOT project to provide statewide testing, monitoring, and evaluation services. This includes running the Illinois DOT Profile Equipment Verification (PEV) Program, collecting surface friction data around the state, providing surface profile QA services, and evaluating the performance of the DOT's mechanistically designed pavements. Mr. Peshkin also reviews and evaluates pavement designs for a variety of clients including federal, state, and international governments and private industry clients.

## REPRESENTATIVE EXPERIENCE

- Principal-In-Charge for the 2019 to 2021 Knox County (Tennessee) PMS Implementation. Overseeing the collection of automated condition data, supporting implementation of the Cartegraph pavement management system, establishing treatment strategies, developing performance models, providing budget analysis and report, assisting in training staff, and running future pavement distress scenarios.
- Principal-In-Charge for the 2019 to 2020 City of Miami (Florida) PMS implementation, as a subcontractor to Cartegraph. APTech collected condition data with APTech's EDGE automated data collection vehicle, assisted with the configuration of Cartegraph OMS, and worked with the client to use the information provided by the PMS to make more informed, accountable, and data-driven decisions, which includes developing budget scenarios, treatment strategies, and performance models.
- Principal-In-Charge for the 2019 Yavapai County (Arizona) PMS Update. Oversaw APTech's work, which included the collection of condition data with APTech's EDGE automated data collection vehicle, updated the County's Cartegraph OMS, and assisted with evaluation of effective treatment strategies and realistic performance models.
- Principal-In-Charge for the 2019 Kane County (Illinois) PMS Implementation. Oversaw all of APTech's work, which included the implementation of a Cartegraph PMS and collection of condition data for the County's 350 miles of roads with APTech's EDGE automated data collection vehicle. APTech worked with the County to fully configure the software and run budget scenarios.

## *Mark P. Gardner, P.E.*

*Program Director*

*Education*

B.S. Civil Engineering, Texas A&M University, 1982

*Professional Registration*

Professional Engineer, Texas, 1988

### INTRODUCTION

Mr. Gardner is the Program Director for the Local Municipalities and Private Agencies Program at Applied Pavement Technology, Inc. (APTech). He has 38 years of pavement engineering experience. His technical efforts focus on roadway pavement asset data collection, evaluation, and management. Mr. Gardner provides pavement condition data to clients in a clear and understandable format to promote data-driven decision making in support of performance-based programs.

Mr. Gardner serves as Project Manager for pavement management and evaluation projects across the United States and abroad. These projects include collecting pavement distress data through automated methods – using APTech's Enhanced Data Gathering Equipment (EDGE) vehicle – and manual methods, reporting pavement condition ratings according to the Pavement Condition Index (PCI) and Pavement Surface Evaluation and Rating (PASER) methods, linking geo-referenced roadway asset data to geographic information systems (GIS) for visualization and reporting, and developing practical maintenance and rehabilitation (M&R) plans. Some of his recent experience includes implementing pavement management systems (PMS) for several local agencies including Kane County (Illinois), the City of Champaign (Illinois), the City of Urbana (Illinois), and the City of Miami (Florida), and reporting condition information in support of agency planning efforts in Fort Wayne (Indiana) and Glenwood Springs (Colorado). He has served as Project Manager for projects in support of the energy industry and local roadway agencies, documenting the impact of heavy equipment during construction on local roads to facilitate the successful negotiation of road use agreements. In addition, Mr. Gardner has completed several pavement evaluation projects to assess current pavement conditions and recommend appropriate M&R strategies.

### REPRESENTATIVE EXPERIENCE

- Project Manager for the 2019 to 2021 Knox County (Tennessee) PMS Implementation. Collecting automated condition data, supporting implementation of the Cartegraph pavement management system, establishing treatment strategies, developing performance models, providing budget analysis and report, assisting in training staff, and running future pavement distress scenarios.
- Project Manager for the 2019 to 2020 City of Miami (Florida) PMS implementation. As a subcontractor to Cartegraph, APTech collected condition data with APTech's EDGE automated data collection vehicle, assisted with the configuration of Cartegraph OMS, and worked with the client to use the information provided by the PMS to make more informed, accountable, and data-driven decisions, which includes developing budget scenarios, treatment strategies, and performance models.
- Project Manager for the 2019 Kane County (Illinois) PMS Implementation. Oversaw the implementation of a Cartegraph PMS and collection of condition data for the County's 350 miles of roads with APTech's EDGE automated data collection vehicle. APTech worked with the County to fully configure the software and run budget scenarios.
- Project Manager for the 2019 Yavapai County (Arizona) PMS Update. Oversaw the collection of condition data with APTech's EDGE automated data collection vehicle, updated the County's Cartegraph OMS, and assisted with evaluation of effective treatment strategies and realistic performance models.

## Luis Sibaja, P.E.

*Engineering Associate*

*Education*

M.S., Civil Engineering,
University of Nevada,
Reno, 2016

B.S., Civil Engineering,
University of Costa Rica, 2014

*Professional Registration*

Professional Engineer,
Nevada, 2019

### INTRODUCTION

Mr. Sibaja is an Engineering Associate at Applied Pavement Technology, Inc. (APTech). His technical efforts focus on roadway pavement management and evaluation. Some of Mr. Sibaja's responsibilities include implementing and configuring pavement management systems including PAVER (which includes providing training for the Nevada Local Technical Assistance Program), Cartegraph, and StreetSaver. Mr. Sibaja's work also includes documenting pavement condition using both manual and automated data collection methods and working with agencies to use those tools effectively, assisting with updating advanced data visualization tools like APTech's interactive pavement management data visualization tool, IDEA, backcalculating pavement modulus from falling weight deflectometer (FWD) data, conducting life-cycle cost analyses (LCCAs), reviewing geographic information system (GIS) data, and developing maintenance and rehabilitation (M&R) plans.

Mr. Sibaja's recent experience includes collecting and analyzing roadway condition data, implementing pavement management systems (PMS), and developing work needs reports for local agencies including Knox County (Tennessee), Miami (Florida), Al Ain Municipality (United Arab Emirates), Carson Area Metropolitan Planning Organization (CAMPO), Carson City Public Works (Nevada), Kane County (Illinois), Newcastle (Washington), Waco (TX), and Yavapai County (Arizona). He combines his knowledge of pavement management systems with creativity to develop solutions for local agencies seeking to make the best use of available resources and make data-driven decisions. Mr. Sibaja listens to clients, assesses their objectives and needs, and works closely with the project team to achieve project goals.

### REPRESENTATIVE EXPERIENCE

- Project Engineer for the 2020 to 2021 Knox County (Tennessee) Automated Data Collection and Pavement Management System Implementation. Collecting automated condition data, supporting implementation of the Cartegraph pavement management system, establishing treatment strategies, developing performance models, providing budget analysis and report, assisting in training staff, and running future pavement distress scenarios.
- Lead Engineer for the 2019 to 2020 Yavapai County (Arizona) PMS Update. Collected condition data with APTech's EDGE automated data collection vehicle, updated the County's Cartegraph OMS, and assisted with evaluation of effective treatment strategies and realistic performance models.
- Project Engineer for the 2019 to 2020 City of Miami (Florida) PMS Implementation, as a subcontractor to Cartegraph. Analyzed PCI data, developed treatment strategies and performance models, and developed budget scenarios.
- Project Engineer for the 2019 to 2020 Kane County (Illinois) PMS Implementation. Collected condition data for 350 miles of the County's roadways with APTech's EDGE automated data collection vehicle. Conducted PCI surveys, analyzed data, developed treatment strategies and budget scenarios, trained County staff, and developed a project report.

# *Mariela J. Solis*

*Engineering Associate*

*Education*

B.S., Civil Engineering,
University of Nevada,
Reno, 2013

## INTRODUCTION

Ms. Solis is an Engineering Associate at Applied Pavement Technology, Inc. (APTech) with 8 years of pavement engineering experience. Her technical efforts focus on pavement management and evaluation. Her responsibilities include conducting Pavement Condition Index (PCI) inspections, performing visual inspections, analyzing data, updating pavement databases, developing maintenance and rehabilitation (M&R) recommendations, preparing reports, and assisting with the development of GIS-based, web-accessible data visualization tools, such as APTech's Interactive pavement management data visualization tool, IDEA.

Ms. Solis has provided pavement engineering and management support to over thirty communities by evaluating the condition of their pavement network, preparing and distributing requests for bids for their pavement M&R needs, and providing quality assurance (QA) support. She has provided pavement management systems for local agencies across the United States, including the Cities of Peoria (Illinois), Glenwood Springs (Colorado), City of Miami (Florida), Yavapai County (Arizona), and Fort Wayne (Indiana). In addition, Ms. Solis has updated airport pavement management system (APMS) projects for seventeen state aviation agencies. Her tasks on these statewide updates include updating pavement network definitions, conducting PCI inspections at hundreds of airports, updating PAVER software databases, and updating IDEA.

## REPRESENTATIVE EXPERIENCE

- Project Engineer for the 2021 Chicago (Illinois) Metropolitan Agency for Planning Pavement Management Implementation project. Collecting automated pavement condition data using APTech's EDGE automated data collection vehicle and developing PCIs in the Oakwood Hills, Marengo, Huntley, and Algonquin areas.
- Project Engineer for the 2021 Rockford (Illinois) Condition Data Collection. Conducting PCI inspections and processing the data.
- Project Engineer for the 2021 Bozeman (Montana) Pavement Condition Assessment and Analysis. Collecting automated pavement condition data using APTech's EDGE.
- Project Engineer for the 2020 Knox County (Tennessee) Automated Data Collection and Pavement Management System Implementation. Conducted network and segment review and performed condition survey.
- Project Engineer for the 2019 to 2020 Yavapai County (Arizona) Pavement Management System Implementation. Analyzed pavement condition data collected by APTech's EDGE and conducting PCI surveys.
- Project Engineer for the 2019 to 2020 Kane County (Illinois) Pavement Management System Implementation. Analyzed pavement condition data collected by APTech's EDGE and conducted PCI surveys and roadway asset extraction.
- Project Engineer for the 2019 to 2020 City of Miami (Florida) Pavement Management System Implementation, as a subcontractor to Cartegraph. Collected condition data with APTech's EDGE.
- Project Engineer for the 2015 to 2020 Champaign (Illinois) Pavement Management Support. Provided optional services requested by the city.

# William Andresen

*Automated Data Collection Coordinator*

*Education*

M.S., Urban and Regional Planning, University of Illinois, 2020

B.A., Geography and Geographic Information Science, University of Illinois, 2015

## INTRODUCTION

Mr. Andresen is the Automated Data Collection Coordinator at Applied Pavement Technology, Inc. (APTech). His technical efforts focus on accurately collecting data for pavement management. His responsibilities include a wide array of automated data collection processes, which includes coordinating and scheduling APTech's automated data collection vehicle, EDGE. In addition, he is responsible for the upkeep of the EDGE, along with performing data collection, processing, and data interpretation. Mr. Andresen also assists with project work, including database development, field surveys, field testing, and data displays.

## REPRESENTATIVE EXPERIENCE

- Automated Data Collection Coordinator for the 2021 Port of Seattle: Seattle-Tacoma International Airport (Washington) Landside Road Pavement Management Program, as a subcontractor to Central West Engineering. Coordinating the pavement condition data using APTech's EDGE.
- Automated Data Collection Coordinator for the 2021 Rockford (Illinois) Condition Data Collection. Coordinating the collection of automated pavement condition data using APTech's EDGE.
- Automated Data Collection Coordinator for the 2021 Bozeman (Montana) Pavement Condition Assessment and Analysis. Coordinating automated data collection with APTech's EDGE.
- Automated Data Collection Coordinator for the 2018 to 2021 California Ridge Wind Farm (Illinois) Pavement Assessments. Coordinating automated data collection with the EDGE to document the condition of specified roadways before and after heavy equipment movement.
- Automated Data Collection Coordinator for the 2019 to 2022 Illinois DOT Statewide Pavement Testing, Engineering Evaluations, and Performance Monitoring. Coordinating automated data collection using APTech's EDGE.
- Automated Data Collection Coordinator for the 2021 to 2022 Champaign (Illinois) Pavement Management System Support. Coordinating automated data collection on local streets using APTech's EDGE.
- Field system operator for Mandli Communications (during previous employment). Managed daily operations of data collection, operated and maintained data collection software and hardware in the field, provided technical support for hardware and software malfunctions, performed routine maintenance on Road Surface Profiler, Laser Crack Measurement System, Photolog, GPS, and LiDAR, and projected and planned team movements based on needs and quality of data.
- GIS research assistant for the University of Illinois Department of Geography (during previous employment). Attained imagery and topographic photos, georeferenced numerous sets of topographic photos to current landscapes, digitized rivers and streams from new and old topographic photos to compare change over time, assisted with field work, and co-authored a paper utilizing information gained from research conducted.

## Gregory A. Kissel

*Engineering Technician*

***Education***

B.S., Sociology and Criminology, University of Illinois, 1986

### INTRODUCTION

Mr. Kissel is an Engineering Technician with Applied Pavement Technology, Inc. (APTech). His technical efforts focus on pavement management and evaluation. Some of his responsibilities include operation of APTech equipment including the Enhanced Data Gathering Equipment (EDGE) automated data collection van and the Falling Weight Deflectometer (FWD), performing Pavement Surface Evaluation and Rating (PASER) condition inspections, completing workstation Pavement Condition Index (PCI) surveys for automated condition data, and conducting profile equipment verification testing.

Prior to joining APTech, Mr. Kissel spent twenty-five years running his own fund-raising firm. He also worked for the Village of Plainfield (Illinois) Water Treatment Department where he performed daily lab tests and was responsible for the inspection and maintenance of the facility.

### REPRESENTATIVE EXPERIENCE

- Technician for the 2020 to 2022 Enbridge Line 5R Roadway Assessment. Collecting road condition data for paved and unpaved surfaces before and after construction.
- Technician for the 2018 to 2021 Enbridge Line 3R Roadway Assessment. Collecting road condition data for paved and unpaved surfaces before and after construction and developing final reports.
- Technician for the 2015 to 2021 Illinois Department of Transportation (DOT) Statewide Pavement Testing, Engineering Evaluations, and Performance Monitoring. Conducting profile equipment verification testing, performing FWD testing, and collecting automated condition data using APTech's EDGE.
- Technician for the 2021 Chicago (Illinois) Metropolitan Agency for Planning's implementation of a pavement management system for four agencies. The agencies included in this project include Oakwood Hills, Marengo, Huntley, and Algonquin. Collecting automated pavement condition data using APTech's EDGE and performing workstation PCI surveys.
- Technician for the 2021 Rockford (Illinois) Pavement Condition Collection. Collecting automated pavement condition data using APTech's EDGE and performing workstation PCI surveys.
- Technician for the 2021 Pavement Condition Survey and PAVER PMS Update at Fort Sill (Oklahoma). Collecting automated condition data using APTech's EDGE.
- Technician for the 2019 to 2020 Knox County (Tennessee) Condition Data Collection and PMS Implementation. Collected automated condition data using APTech's EDGE and performed workstation PCI surveys.
- Technician for the 2019 to 2020 City of Miami (Florida) Condition Data Collection and PMS implementation, as a subcontractor to Cartegraph. Collected automated condition data with APTech's EDGE.
- Technician for the 2019 to 2020 City of Urbana (Illinois) PMS Implementation and On-Call Pavement Management Services. Collecting automated pavement condition data with APTech's EDGE data collection van and performing workstation PCI surveys.

# Albert Parcero

*Engineering Technician*

***Education***

B.S., Engineering Technology, Eastern Illinois University, 2020

## INTRODUCTION

Mr. Parcero is an Engineering Technician at Applied Pavement Technology, Inc. (APTech). Mr. Parcero's responsibilities at APTech include performing automated data collection by operating APTech's Enhanced Data Gathering Equipment (EDGE) vehicle, conducting Pavement Condition Index (PCI) inspections, and conducting falling weight deflectometer (FWD) testing. He also manages and develops geographic information systems (GIS) and computer-aided design (CAD) maps for inspection and reporting for a variety of projects such as military bases and airports. He also assists in processing data to be included in APTech's Interactive pavement management data visualization tool, IDEA.

## AREAS OF EXPERTISE

- Pavement Management
- Pavement Evaluation

## REPRESENTATIVE EXPERIENCE

- Project Technician for the 2021 to 2022 City of Champaign (Illinois) Pavement Management System Support project. Collecting pavement condition data for local, collector, and arterial streets.
- Project Technician for the 2021 Rockford (Illinois) Pavement Condition Data Collection. Providing automated data collection using APTech's EDGE.
- Project Technician for the 2021 Chicago (Illinois) Metropolitan Agency for Planning's Implementation of Pavement Management System for Four CMAP Agencies. Analyzing collected data and developing project report.

# *Tristan Faro*

*Engineering Technician*

*Education*

B.S., Geography and Environmental Resources, Southern Illinois University, 2020

## INTRODUCTION

Mr. Faro is an Engineering Technician at Applied Pavement Technology, Inc. (APTech). Mr. Faro's responsibilities at APTech include performing automated data collection by operating APTech's Enhanced Data Gathering Equipment (EDGE) vehicle and conducting Pavement Condition Index (PCI) inspections. He also manages and develops geographic information systems (GIS) and computer-aided design (CAD) maps for inspection and reporting for a variety of projects such as military bases and airports. He also assists in processing data to be included in APTech's Interactive pavement management data visualization tool, IDEA.

## AREAS OF EXPERTISE

- Pavement Management
- Pavement Evaluation
- GIS Mapping

## REPRESENTATIVE EXPERIENCE

- Project Technician for the 2018 to 2022 Illinois Department of Transportation Statewide Engineering Services for Pavement Testing, Evaluations, and Performance Monitoring. Collecting automated pavement management data using APTech's EDGE.
- Project Technician for the 2021 to 2022 City of Champaign (Illinois) Pavement Management Support Project. Collecting automated pavement condition data using APTech's EDGE.
- Project Technician for the 2021 Bozeman (Montana) Pavement Condition Assessment and Analysis. Collecting automated pavement condition data using APTech's EDGE.
- Project Technician for the 2021 Rockford (Illinois) Pavement Condition Data Collection. Collecting automated pavement condition data using APTech's EDGE.
- Project Technician for the 2021 Chicago (Illinois) Metropolitan Agency for Planning's (CMAP) Implementation of Pavement Management Systems for Four CMAP Agencies. Preparing pavement management database and collecting automated pavement condition data using APTech's EDGE.
- Project Technician for the 2021 Port of Seattle (Washington) Seattle-Tacoma International Airport Landside Road Pavement Management Program update. Collecting automated pavement condition data using APTech's EDGE.

# Appendix B: Insurance

APPLPAV-01 KLAUREI

# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 3/30/2021

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Insurance Providers Group of Illinois, LLC
3302 Mission Drive
Suite 104
Champaign, IL 61822

CONTACT NAME: Kathleen Fuoss-Laurent
PHONE (A/C, No, Ext): (217) 352-7080 FAX (A/C, No): (217) 903-3902
E-MAIL ADDRESS: kathleen@ipgins.com

| INSURER(S) AFFORDING COVERAGE | NAIC # |
|---|---|
| INSURER A : Travelers Property Casualty Ins Co | 36161 |
| INSURER B : Travelers Indemnity Co | 02520 |
| INSURER C : The Charter Oak Fire Insurance Company | 25615 |
| INSURER D : Arch Insurance Co | 11150 |
| INSURER E : | |
| INSURER F : | |

INSURED
Applied Pavement Technology, Inc.
115 W Main Street, Suite 400
Urbana, IL 61801

COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

| INSR LTR | TYPE OF INSURANCE | ADDL INSD | SUBR WVD | POLICY NUMBER | POLICY EFF (MM/DD/YYYY) | POLICY EXP (MM/DD/YYYY) | LIMITS | |
|---|---|---|---|---|---|---|---|---|
| A | X COMMERCIAL GENERAL LIABILITY<br>CLAIMS-MADE [X] OCCUR<br>GEN'L AGGREGATE LIMIT APPLIES PER:<br>POLICY [X] PRO-JECT [ ] LOC<br>OTHER: | X | | 680-7K622243 | 4/1/2021 | 4/1/2022 | EACH OCCURRENCE<br>DAMAGE TO RENTED PREMISES (Ea occurrence)<br>MED EXP (Any one person)<br>PERSONAL & ADV INJURY<br>GENERAL AGGREGATE<br>PRODUCTS - COMP/OP AGG | $ 1,000,0<br>$ 1,000,0<br>$ 5,000<br>$ 1,000,0<br>$ 2,000,0<br>$ 2,000,000 |
| B | AUTOMOBILE LIABILITY<br>X ANY AUTO<br>OWNED AUTOS ONLY [ ] SCHEDULED AUTOS<br>X HIRED AUTOS ONLY [X] NON-OWNED AUTOS ONLY | X | | BA- 5R191421 | 4/1/2021 | 4/1/2022 | COMBINED SINGLE LIMIT (Ea accident)<br>BODILY INJURY (Per person)<br>BODILY INJURY (Per accident)<br>PROPERTY DAMAGE (Per accident) | $ 1,000,0 |
| B | X UMBRELLA LIAB [X] OCCUR<br>EXCESS LIAB [ ] CLAIMS-MADE<br>DED [X] RETENTION $ 10,000 | | | CUP-7K62302A | 4/1/2021 | 4/1/2022 | EACH OCCURRENCE<br>AGGREGATE | $ 10,000,000<br>$ 10,000,0 |
| C | WORKERS COMPENSATION AND EMPLOYERS' LIABILITY<br>ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y / N [ ]<br>If yes, describe under DESCRIPTION OF OPERATIONS below | N / A | X | UB-0K939968 | 4/1/2021 | 4/1/2022 | X PER STATUTE [ ] OTH-ER<br>E.L. EACH ACCIDENT<br>E.L. DISEASE - EA EMPLOYEE<br>E.L. DISEASE - POLICY LIMIT | $ 1,000,000<br>$ 1,000,0<br>$ 1,000,0 |
| D | Professional Liab | | | PAAEP0139800 | 4/1/2021 | 4/1/2022 | Each Claim Limit | 5,000,000 |

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
Proof of Insurance

CERTIFICATE HOLDER
Applied Pavement Technology, Inc.
115 W. Main St., Suite 400
Urbana, IL 61801

CANCELLATION
SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE
Steve Behrmann