TXShare
Your Public Sector Solutions Center

REQUEST FOR PROPOSALS
For
Road and Highway Asset Management Software
RFP # 2024-096

RESPONSE PREPARED BY:

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Statement of Understanding:

TXShare Cooperative Purchasing Program
Attn: Craigan Johnson
616 Six Flags Drive
Arlington, TX 76011

Subject: Proposal Submission for Road and Asset Management Software RFP #2024-096

vialytics is a leading global provider of pavement evaluation and intelligent road management. At vialytics, we understand the challenges municipalities face and empower them to monitor and maintain road conditions proactively, so they can focus on other crucial tasks to keep their communities safe and connected.

Our smartphone-based solution can be installed in any agency or personal vehicle to permanently monitor pavement defects such as cracks or potholes. Our AI quickly analyzes the data for damage to the road surface and other assets in the right-of-way.

With vialytics as your partner, you will receive the following services and information:

1. Comprehensive visual documentation and identification of damage to the road surface in 16 damage categories.
2. Automated cataloging and identification of damage of county assets, including, but not limited to, manholes, street-signs, and catch-basins.
3. Software recommendations on where road improvements should be prioritized.
4. Enable the user to manually collect and easily communicate and export data.
5. Flexibility and interoperability to work with other software currently deployed.
6. Unparalleled customer success, supporting the ongoing growth and development of the partnership.

By leveraging such advanced technological solutions, TXShare members will achieve proactive road and asset management, ensuring enhanced safety and longevity of their infrastructure.

Please find the required documentation as outlined in the RFP enclosed. We appreciate your consideration and look forward to the opportunity to work with TXShare and its distinguished members. Thank you for your time.

Key Personnel:

The following vialytics personal will be involved in the onboarding, training, account management, and ongoing customer success of our partners:

Tom Cummins
Director of US Customer Success

> Based in New York City but hailing from North Central Ohio, Tom brings diverse software industry expertise to public agencies nationwide. At vialytics, Tom leads the US Customer Success team ensuring clients see high platform adoption and return on investment while also supporting vialytics' Sales team with its more complex projects. Tom has championed numerous successful software implementations in other industries.

Georgina Chiou
Customer Success Manager - US East

> "As a Customer Success Manager, my goal is to foster smoother journeys and provide dedicated support to municipalities across the country, ensuring our solutions seamlessly integrate into communities of all sizes."

Taylor White
Customer Success Manager - US West

> "My mission is to ensure your success with our intelligent road management system. By understanding your unique challenges and providing dedicated support, I help municipalities seamlessly integrate our technology, fostering safer and more efficient communities across the country."

Marcello Garofalo
VP of Channel Sales

> "Our plan is to develop, strengthen, and expand our U.S. partnerships by providing the best in-class proactive intelligent road management system. I am here to ensure all our teams drive our partners' success and actively listen to them for joint growth."

Daniel Laufer
Senior Sales Manager - USA

> "Daniel is an international partnership and business development professional with a demonstrated history of successfully forging sustained partnerships with government agencies in the transportation sector. Daniel's role at vialytics includes identifying and establishing supplier/agency synergy while blueprinting long-term and mutually successful partnerships."

Daniel Moz
Product Manager

> "Daniel Romeo-Moz is a Senior Product Manager with a background in Mechanical Engineering and Product Management. He led the complete redesign of the vialytics web systems, driving user growth from the first German customer to over 400 clients across Europe and the USA. Daniel is also a certified Scrum Master."

References:

1. Ray Poerio, DPW Director of Edison, NJ
    a. rpoerio@edisonnj.org
    b. (732) 248-7288
2. Troy Hostetler, Superintendent of Highways Huntington County, IN
    a. troy.hostetler@huntington.in.us
    b. (260) 358-4881
3. Phil Roux, DPW Director of Lakewood, NJ
    a. proux@lakewoodtwpnj.org
    b. (732) 905-3405
4. Chad Yeagley, DPW Director of Lebanon, PA
    a. cyeagley@lebanonpa.org
    b. (717) 639-2800

Project Related Experience & Qualifications

Many municipalities lack the resources necessary to keep their road infrastructure in the best possible condition. With funding spread thinner every year, roads are deteriorating under increasing traffic volume and becoming dangerous.

Legacy GIS platforms and traditional road management processes require tedious, manual maintenance. Carrying out road inspections, documenting pavement distress, and maintaining traffic signs are all necessary tasks for public agencies. With limited resources, highway departments must juggle citizen complaints and long-term maintenance measures.

To account for these challenges, Patrick Glaser, Achim Hoth, and Danilo Jovicic-Albrecht launched vialytics in 2018 with the ambition to find an automated solution for the maintenance of roads. Using artificial intelligence and continuously updated data, vialytics automates all processes necessary to manage public road infrastructure. The platform provides clarity in capital planning and relief in managing everyday tasks.

Since inception, the company has experienced rapid growth due to its software's easy-of-use and unparalleled customer service. To date, vialytics has streamlined road management practices across 450+ transportation agencies, across the USA, Germany, France, Austria, and others. We are a leading global innovator in automated road and asset management. Combining powerful AI and Machine Learning with user-friendly software and tools, vialytics empowers proactive infrastructure management. With award-winning, user-friendly software, our solution has been deployed across a wide range of complex infrastructure environments, from major urban cities, to rural county roads.

Technical Proposal:

TAB D - A. Proposal Narrative

1. Intro: vialytics AI Road and Asset Management

vialytics empowers unparalleled capabilities to streamline and optimize road and asset management. Our technology enhances and optimizes data-driven decision making, driving significant operational and cost efficiency cross-organizationally. Through its intuitive mobile application, vialytics dynamically collects continuous data on pavement surface conditions and various assets, ensuring real-time, actionable insights. This data is accessible via a secure web application, consolidating asset management into a single platform.

vialytics WIKI: https://wiki.vialytics.com/

Section 1: vialytics Artificial Intelligence

vialytics leverages Artificially Intelligent Image Recognition and Machine Learning to independently detect, assess, and classify damage within the surface of the roadway. In addition, vialytics' AI will also automatically geo-locate and catalog inventory for manholes, catch-basins, and street-signs.

With rapid processing speeds, vialytics is superior to traditional visual inspections, replacing subjective and lengthy assessments with objective and accelerated processing of data.

vialytics AI: Road Condition Assessments:

Methodology:

vialytics' approach combines advanced mobile app data collection methods with a streamlined browser-based web platform to ensure accurate and efficient inspections.

To collect pavement condition data, users attach an iPhone to their vehicle's windshield to collect image data–the most objective representation of their roads. The device automatically takes a georeferenced picture approximately every 12 feet while driving. Road damage and asset inventories are automatically detected in the images using proprietary computer vision algorithms.

The condition of each road is automatically evaluated and displayed in an easy-to-use web application. Employees can create rehabilitation plans, including estimated costs and prioritization based on suggested reconstruction proposals, with just a few clicks. High-risk individual distresses are highlighted, and users can directly assign them to the proper party. The status of the work always remains transparent and traceable.

Technical Details:

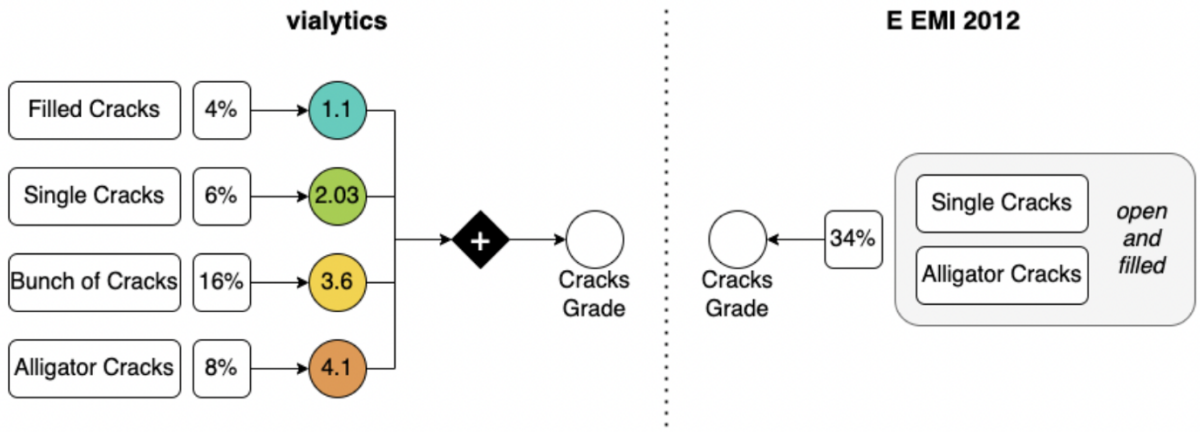
The condition assessment of the road is based on the ZTV-ZEB-Stb, the Additional Technical Terms of Contract and Guidelines for the Condition Assessment and Evaluation of Roads, as well as the E EMI 2012, the current recommendations for the maintenance management of roads, which were further developed and adapted by vialytics. vialytics also provides a PCI score based on the ASTM Standard Practice for Roads and Parking Lots Pavement Condition Index Surveys.

By leveraging artificial intelligence, the objectivity and speed of right-of-way asset assessments are significantly improved when compared to the legacy procedures. The object-specific automatic damage detection evaluates 15 relevant pavement distress categories.

Thanks to the higher number of pavement distress categories which we detect, our recording of surface damage is more detailed than required in the vast majority of cities worldwide.

A measuring vehicle or human will often classify all crack types as a “crack.” In contrast, vialytics differentiates into four different crack categories (“filled cracks,” “single crack,” “bunch of cracks,” and “alligator cracks”). The individual crack types contribute individually to the overall weighted score for cracks. Differentiating these crack categories is essential for active and reasonable road maintenance management.

Figure 1: Difference in the calculation of the intermediate value crack in the vialytics web system vs. E EMI 2012



Once all inspection data is uploaded, the data is analyzed using vialytics' proprietary algorithm. This software calculates the condition class for each road point and segment and offers pavement management recommendations based on the distresses detected.

vialytics assesses the condition of a road segment using our evaluation logic. The logic follows these steps:

1. The road is divided into a grid of cells.
2. The damage in each cell is classified into one of 15 damage classes.

3. The relative damage area for each damage class is calculated.
4. The relative damage areas are normalized on a scale of 1 to 5.
5. The normalized scores for each damage class are combined to calculate an overall grade for the road.
6. The overall grade is adjusted using a “punch rule” to ensure critical damages, such as potholes, are given a higher weight in the overall grade.
7. A condition class is assigned to the road.

The damage classes are divided into four main categories:

1. Potholes
2. Cracks
3. Joints and Longitudinal Cracks
4. Patching

Each category contains several specific damage types. For example, the "Outbursts" category includes potholes, grain breakouts, and flakings. You can find more information on these damage categories at https://wiki.vialytics.com/en/damage-classes

The severity of each damage class is weighted differently using a “punch rule” in the calculation so that critical damages, such as potholes, significantly impact the overall grade with a higher weight. For example, if a road has a pothole that is large enough to cause a safety hazard, the overall grade of the road will be reduced even if the other damage classes are not severe.

The road condition classes used to prioritize maintenance and repair work are as follows:

- Excellent (1)
- Good (2)
- Satisfactory (3)
- Fair (4)
- Poor (5)

These five condition classes correspond to the numbers and colors shown within the vialytics web system. Excellent corresponds to 1 (Blue on the web system heatmap). Poor corresponds to 5 (Red on the web system heatmap).

In addition to the 1-5 EMI score, vialytics also provides a 0-100 Pavement Condition Index (PCI) Score for each point and segment available within the websystem or exportable as a spreadsheet or shapefile for use in other mapping platforms.

vialytics AI: Street-Sign Management

Utilizing the same images, vialytics AI will also identify, catalog inventory, and assess damage to street signs. vialytics AI will automatically:

- Identify the MUTCD sign type
- Identify the geo-location of the sign (latitude and longitude)
- Assign a unique vialytics ID number to each sign

vialytics AI will also detect the following four classifications of damage to signs:

- Fading
- Dirty
- Stickered/Graffitied
- Hidden (by trees/green growth)

This data is then uploaded from the mobile device into the cloud, where it will be available for the user in the vialytics web applications Traffic Sign module.

vialytics AI: Storm Drain Management

Utilizing the same images, vialytics AI will also identify, catalog inventory, and assess damage to storm drains (also commonly referred to as a catch basin). vialytics AI will automatically:

- Identify the geo-location of the storm drain (latitude and longitude)
- Assign a unique vialytics ID number to each storm drain

vialytics AI will also detect the following classifications of damage to storm drains:

- Lowered
- Even
- Outsticking

This data is then uploaded from the mobile device into the cloud, where it will be available for the user in the vialytics web applications Manholes and Storm Drains Module.

Artificial Intelligence for Asset Management: Manholes

Utilizing the same images, vialytics AI will also identify, catalog inventory, and assess damage to Manholes. vialytics AI will automatically:

- Identify the geo-location of the manhole (latitude and longitude)
- Assign a unique vialytics ID number to each manhole.

vialytics AI will also detect the following classifications of damage to manholes:

- Lowered
- Even
- Outsticking

This data is then uploaded from the mobile device into the cloud, where it will be available for the user in the vialytics web applications Manholes and Storm Drains Module.

Artificial Intelligence for Road Safety Alerts:

During AI processing, vialytics AI will trigger a Road Safety Alert when identifying the following damage classifications may pose an increased hazard to pedestrians, bikers, and vehicles. These Road Safety Alerts can also be tracked in the Road Safety Alert Module.

- Road Condition: vialytics AI will trigger a Road Safety Alert for severe potholes.
- Manholes: vialytics AI will trigger a Road Safety Alert for Lowered and Outsticking manholes.
- Storm drains: vialytics AI will trigger a Road Safety Alert for Lowered and Outsticking storm drains.

Section 2: Mobile Application for Collection of Data

vialytics is an innovative software solution designed to streamline pavement and asset data collection, eliminating the need for specialized hardware and ongoing maintenance.

vialytics AI Condition Assessment is activated by mounting a mobile phone on the upper center windshield of an agency vehicle. For vehicles with a dashboard, we deploy a black matte cover that negates glare and reflections into the iPhone's camera lens.

While driving at any speed below 38 miles per hour, vialytics captures an image of the right-of-way every 10-12 feet, enabling the following:

1. Automated Image Capture:
    - Capture high-quality photographic records of the right-of-way effortlessly.
    - Automatically log critical data in each image, including:
        - Image identification number
        - Latitude and longitude coordinates
        - Date and time stamps
2. Hands-Free Operation:
    - Ensure safety and efficiency with the vialytics Smart Button that allows users to safely manually document the right-of-way without stopping the vehicle or removing hands from the steering wheel.
    - Record automatically transcribed audio notes directly within the mobile application, eliminating the need for additional manual documentation methods.

Although vialytics Terms & Conditions guarantees 30 days, vialytics condition assessment data is typically available within 24-72 hours. This empowers our users to benefit from a rapid transition from data collection to data analysis, ensuring critical, timely, and informed decision-making.

An essential part of the AI processing is a privacy screening to ensure anonymization of all faces and license plates that may appear in images. This image anonymization is the first step of vialytics' AI analysis.

Condition assessment data and images are rendered and available in the vialytics web application's Pavement Condition Module.

Section 3: The vialytics Smart Button

During the use of vialytics, the vialytics Smart Button (bluetooth connected), enables seamless manual user intervention to photograph the right-of-way, record an automatically transcribed audio description of the photograph, without the user

removing their hands from the steering wheel of the vehicle. This delivers functionality to safely and quickly record images and data from the right of way while:

1. Negating the need for the user to to slow/stop and/or exit the vehicle.
2. Utilize pen, paper, or other fragmented forms of data collection.

The smart-button is designed to easily attach to the steering vehicle of the vehicle providing the following functionality to create a truly hands-free and seamless digital note-taking device:

a. A single click of the button will create a unique photograph of the right-of-way.
b. After a single click, vialytics will prompt the user to “press and hold” the button, in order to record a voice note. This voice note will then assign itself to the image in both text and audio format.
c. A double click of the button will pause or restart the condition assessment.

Section 4: The vialytics Hardware Kit

vialytics furnishes all of their partners with their signature yellow hardware kit. Included in these kits are the required hardware to deploy a condition assessment, seamlessly transferable from vehicle-to-vehicle. Included in the kit is:

A) Anti-reflectivity black matte blanket for dashboard.
B) Mobile phone chargers for sustained vehicle use
C) vialytics Smart Button
D) Windshield mount for mobile phone.

Section 5: vialytics Web Application for Management of Data

vialytics web application is accessible from any web connected browser. The web application consists of modules that empower the user to manage the full lifecycle of the road surface, assets, and any other miscellaneous items that require one-time or ongoing documentation.

1) Pavement Condition Module
2) Construction Planning Module
3) Asset Management Module
4) Asset Based Task Management Module
5) GPS Tracking Module
6) Road Safety Alerts Module

Reconstruction Proposals

vialytics offers immediate user value by highlighting individual geo-coordinate and road segments that indicate need for specific treatment types.

vialytics reconstruction proposals will highlight areas requiring the following treatment types (based on traditional pavement rehabilitation standards)

1) Pavement Outburst Treatments
2) Crack and Seam Sealing
3) Segment Surface Renewal
4) Full Segment Renewal

Pavement Condition Module (PCM)

The Pavement Condition Module (PCM) enables precise identification of damage across the surface of the road network.

The PCM offers robust filtering capabilities, allowing users to examine road condition data by individual geo-coordinates or entire street segments. Each geo-coordinate is paired with an associated photograph and a pavement rating score.

vialytics enables the user to adjust the preferred grading system between the following options:

a. EMI: Robust European grading system based on European civil engineering expertise
b. PCI: Pavement Condition Index
c. PASER: Pavement Surface and Evaluation Rating

Individual geo coordinates will also receive an overall rating score with an associated breakdown of the 16 damage classifications from that individual latitude and longitude.

Condition data can also be filtered by Segment, which viralytics' map interprets as intersection to intersection. Individual segments will also receive an overall rating score with an associated breakdown of the 16 damage classifications from that individual segment.

Color Coded Scoring + Grading: Individual geo coordinates and segments will also be color-coded, based on condition, enabling rapid visualization and identification of areas containing critical road damage. This module filter will also indicate the p road miles that fall within each grading.

The PCM also offers functionality to filter for 16 classifications of damage within the surface of the road network.

Road Classification: The PCM enables filtering for seven different classifications of road:

- Motorways
- Trunk Roads
- District Roads
- Residential Roads
- Country Lanes
- Living Street
- Track Roads

Distress Type: The PCM enables filtering for 16 classifications of road distress:

- Potholes (6 variations)
- Cracking (4 variations)
- Joint / Longitudinal Cracks (2 variations)
- Damaged Patching (3 variations)
- Poor Ride Quality - Individual classification based mobile phone accelerometer data.

Construction Planning Module (CPM)

Once the user has decided to move a segment into the Construction Planning Module, vialytics streamlines planning, design, and execution phases of road rehabilitation projects. This module empowers engineers, planners, and project managers to dynamically manage capital improvements projects.

1. Design and Planning: vialytics offers a fully customizable module for maintaining a dynamic road improvements practice. Customizable properties enable simple project planning. Create road reconstruction plans based on:
    - Work Prioritization
    - Short or Long Term Planning
    - Costs
    - Treatment Categories (w/ cost forecasting)
    - Construction Scheduling and Timelines
    - Contractors
    - Life Extension
    - AOI (Any Other Item)

-

2. Cost Estimation and Budgeting: Functions for estimating project costs, including materials, labor, and equipment, and managing budgets throughout the project lifecycle. To help the user maximize budget and workforce efficiency, the vialytics provides a budget efficiency tracker, which identifies areas of over/under spending based on damage to the road network.

Asset Management Module

vialytics Asset Management module is a comprehensive platform to dynamically manage the full life-cycle of assets that are owned and maintained by the user. Vialytics Asset Management Module is an open-ecosystem Geographic Information System mapping tool. Assets can seamlessly be added into the vialytics Asset Management Module via:

1) the vialytics ToDo mobile application
2) The vialytics web application
3) Importing a layer of shapefiles.

The user can also enter information, attach external files (including photographs), to optimize maintenance of the asset.The user can also customize property fields to enter other critical asset data, such as material, supplier, and installation date, etc.

Users can also utilize the Asset Based Task Management Module, described below, to dynamically manage the full lifecycle of the asset.

Asset Based Task Management Module:

vialytics Asset Based Task Management is a super user-friendly feature that serves as a check + control for ongoing asset maintenance.

Tasks can be dynamically created linked to any asset or photograph within vialytics. A task can be created from:

a. Vialytics ToDo Application
b. Vialytics Smart Button connected any vialytics mobile application
c. Vialytics web application

Tasks can be labeled and subsequently tracked through any of the following properties:

1) Task Status
    a) Rapidly identify tasks that are in “Open,” “In Progress,”, or “Done”
2) Task Priority
    a) Assign prioritization to tasks to ensure high visibility.
    b) Users can then quickly track these tasks based on priority
3) Task Categories
    a) Assign a category to each task, assigning it to the proper management category.
    b) Users can create an unlimited quantity of Categories to effectively manage their day-to-day operations.
4) Task Assignee
    a) Users can assign tasks to other users within the vialytics system.
    b) Users that are assigned tasks will receive a notification that a task has been assigned to them.
5) Task Intervals
    a) Users can create one-time or recurring tasks within the module
    b) Recurring tasks can be used for the active lifecycle management of any asset. (Example: Assigning annual recurring inspections for fire hydrants)
6) Task Due date
    a) Users can assign and then track due dates for individual and recurring tasks.
    b) Due dates can then be reassigned, if necessary, based on task prioritization.
7) Task Attachments
    a) Users can attach external files within the vialytics Task Module.

By integrating these powerful features, vialytics users achieve streamlined management and organizational efficiency for its asset and day-to-day task management.

GPS Track Control Module

vialytics Track Control allows the user to create visual tracking of the vialytics mobile application users. GPS Tracking is recording during:

1) A condition assessment.
2) Activating Track Control in the vialytics ToDo, using any mode of transport.

These track controls can then be filtered and viewed within the Track Control Module in the vialytics web application.

Sharing of Data: Emails, Printing, Excels, Interoperability

vialytics empowers the seamless sharing of data without utilizing other forms of fragmented communication. The vialytics web application enables:

- Direct Data Generation and Sharing via Email:
    - Effortlessly generate and send data, including reports, photographs, and tasks, directly through email.
    - Facilitate efficient communication and collaboration by allowing users to share critical information instantly.
    - Enhance productivity by streamlining the process of data distribution among team members and stakeholders.
- Printable Document Generation:
    - Easily create and print documents directly from the web application.
    - Support various document types, ensuring all necessary information is readily available in a hard copy format.
    - Ensure consistency and accuracy with auto-generated, professional-quality printable documents.
- Excel File Format Generation:
    - Generate comprehensive data reports in Excel format, tailored to specific needs and requirements.
    - Condition Assessment Reporting by Individual Geographic Point:
        - Accurately report on the condition of specific geographic locations.
        - Provide detailed assessments to facilitate targeted decision-making and resource allocation.
    - Condition Assessment Reporting by Individual Segments:
        - Deliver segmented reports that break down data into manageable sections.
        - Enable focused analysis and improved understanding of condition assessments across different segments.
    - Miscellaneous Reporting:
        - Cater to diverse reporting needs with customizable data outputs.
        - Address unique requirements with flexible reporting options that adapt to various data management scenarios.

vialytics Cybersecurity Strategy

For documentation of vialytics Cyber Security documentation, please see the attached four documents, titled:

- vialytics - CSA Star Certification
- vialytics - List Subcontractors-EN
- Vialyitcs - Privacy - Policy - EN
- vialytics - Technical & Org Measures

vialytics also plans to implement SSO in the first half of 2025.

For more information about vialytics Cybersecurity strategy, please contact:

Achim Hoth
vialytics Chief Technology Officer
Email: a.hoth@vialytics.de

2. For collection of data, vialytics provides its partners with two native mobile phone applications that can be accessed from the Apple or Google Play Store.:

a. vialytics Condition Assessment Application - native to iOS devices.
b. vialytics ToDo Application - native to iOS and Android devices

vialytics also provides its partners with access to a web-application which can be accessed from most standard network connected browsers (Chrome, Safari, etc.)

3. vialytics negates the need for purchase, installation, and ongoing maintenance of specialized hardware and sensors. vialytics is rapidly deployed by mounting an iPhone to the windshield of a municipal vehicle and driving at any speed up to ~38 miles per hour. The software will capture a photograph of the right-of-way every 10-13 feet. After upload into the cloud, vialytics uses AI Image Recognition and Machine Learning to identify damage to the surface of the road as well as unique assets within the right of way.

4. vialytics stores all images recorded by the mobile device, along with:

a. Assigned photo ID within vialytics
b. Date + Time of photo creation
c. Associated Latitude and longitude

5. The vialytics Smart Button delivers functionality to safely and quickly record images and data from the right of way while:

a. Negating the need for the user to to slow/stop and/or exit the vehicle.
b. Utilize pen, paper, or other fragmented forms of data collection.

The smart-button is designed to easily attach to the steering vehicle of the vehicle providing the following functionality to create a truly hands-free and seamless digital note-taking device:

d. A single click of the button will create a unique photograph of the right-of-way.
e. After a single click, vialytics will prompt the user to “press and hold” the button, to record a voice note. This voice note will then assign itself to the image in both text and audio format.
f. A double click of the button will pause or restart the condition assessment.

6. After data is collected using vialytics, the data is then available to the user in the web-application during the following time frames:

a. GPS data of the user: ~60 seconds
b. Picture data recorded using the vialytics button or ToDo application: ~60 seconds
c. Condition Assessment data from Condition Assessment Application: Although vialytics terms-of-service indicates a max of 30 days, data is typically available 24-72 hours after condition assessment data has finished uploading into the Cloud.

7. vialytics uses Artificially Intelligent Image Recognition technology to conduct a comprehensive condition assessment on the surface of the roadway.

8. vialytics uses Artificially Intelligent Image Recognition technology to automate asset management. vialytics will identify and create inventory of all manholes, catch-basins, and street-signs in the right-of-way. To each asset, vialytics will also assign a unique Asset ID.

9. vialytics records the date and time associated with a number of functionalities within the system:

a. vialytics records the data and time for each image generated through the vialytics application
b. vialytics will also track and record the GPS of the user, documenting when a user has navigated over a specific point on the map.

10. In addition to establishing inventory of manholes, catch-basins, and street-signs, vialytics will also identify if the following damage types occur:

1. Manholes and Catch-Basins: Outsticking or Lowered (relative to asphalt surface)
2. Street-Signs: Faded, Dirty, Stickered/Graffitti, Hidden by Brush

11. vialytics uses Artificially Intelligent Image Recognition technology to conduct a comprehensive condition assessment on the surface of the roadway. vialytics will:

a. Identify up to 15 classes of damage within the surface of the roadway
b. Identify the severity of each of the 15 damage classes identified.

12. Yes, as indicated above, vialytics utilizes very powerful AI Image Recognition to identify location of damage, classification of damage, and severity of damage.

13. Critical to ongoing efficiency in any road management operation, objective reasoning is required. vialytics offers a number of qualified condition gradings depending on user preference. Each of these gradings enables 100% system objectivity.

14. vialytics enables the user to adjust the preferred grading system between the following options:

d. EMI: Robust European grading system based on European civil engineering expertise
e. PCI: Pavement Condition Index
f. PASER: Pavement Surface and Evaluation Rating

15. Yes, vialytics AI will identify each street-sign within the right-of-way, according to sign type.

16. Yes, vialytics will assign each street-sign with an individual identification number.

17. Yes, vialytics will identify if the street-sign is damaged, based on the four damage types stated in the RFP:

a. If the sign is Faded
b. If the sign is Dirty
c. If the sign has been covered by graffiti or stickers
d. If the sign is concealed by a tree branch or green growth.

18. Yes, vialytics will identify each catch-basin within the surface of the road. vialytics will then inventory each catch-basin by assigning an individual identification number.

19. Yes, vialytics will identify if the catch-basin is Lowered or Outsticking, relative to the surface of the asphalt.

20. Yes, vialytics will identify each manhole within the surface of the road.

21. Yes, vialytics will then inventory each manhole by assigning an individual identification number.

22. Yes, vialytics will identify if the manhole is Lowered or Outsticking, relative to the surface of the asphalt.

23. For management of data, the vialytics web application can be accessed from any web-connected web browser.

24. The vialytics web application includes the following modules for management of data:

1) Pavement Condition Module
2) Construction/Pavement Planning Module
3) Dynamic Asset Management Module
4) Task Management + Asset Based Task Management Module
5) GPS Track Module
6) Road Safety Alert Module

25. Yes. Within the vialytics web application's Pavement Condition Module, the user can utilize the Filter option to identify individual damage in high, granular detail.

1) The user can filter according to:
    a) Points: Individual geo-points (latitude and longitude) recorded during condition assessments.
    b) Segment: Full street segments defined by vialytics as street intersection to intersection.
    c) Damage Type: Identification of 16 individual classes of damage within the surface of the roadway.
    d) Damage Severity: Identification of damage severity, from light to severe, based on objective color and numerical rating system.

26. Yes, the user can access the vialytics web-application to view each individual image recorded during a condition assessment or during a track control.

27. Yes, within the vialytics web application Pavement Management Module, the user can filter road condition data based on individual geo-points on map (latitude and longitude), or based on street segments, defined by vialytics as street intersection to intersection.

28. Yes, within the vialytics web application every single individual image generated in vialytics is tagged with the associated geo-point (latitude and longitude). This includes

images generated from condition assessments, asset management, task management, and road safety alert.

Condition Assessment Module Images: Each individual image generated from a condition assessment is accompanied with an overall condition rating score as well as as well as a condition rating for each individual damage type (16)

29. Yes, each individual “segment” mapped in vialytics receives an overall grade based on the vialytics AI scoring system.x

30. Within the vialytics Pavement Condition Module, each Point and Segment will also be color-coded, based on its condition, that will empower the user to quickly visualize and identify areas of critical need. The module will enable the County to filter and visualize the number of road miles that fall within each grading based on the vialytics color-coded “heat-map” grading system.

The PCM will also provide functionality to filter for 16 classes of damage within the surface of the pavement.

31. vialytics will allow the user to filter for the following road types within the vialytics web application:

a. Motorways
b. Trunk Roads
c. District Roads
d. Residential Roads
e. Country Lane
f. Living Street
g. Track Roads

32. At the moment, vialytics only identifies paved asphalt roads. Identification and categorization to additional road surfaces are in the vialytics product roadmap for development.

33. The vialytics Pavement Condition Module enables the user to identify, on a granular level, the class and severity of damage that exists across the road network. vialytics identifies 16 types of damage across 5 damage categories.

- Potholes
- Cracking
- Joint / Seam Failure (Longitudinal Cracking)
- Damaged Patching

- Poor Ride Quality (This sixth category is not built into the overall road score as it is dependent on vehicle type and driver behavior.

34. Yes, vialytics will immediately suggest damaged individual geo-points and/or segments based on desired treatment types:

a. Outburst Fillings
b. Cracks and Seams Filling
c. Surface Renewal
d. Full Surface Renewal

35. Yes, the vialytics web application contains a CPM (Construction Planning Module) that empowers the user to streamline planning, design, budget, and execution phases of capital improvement and road rehabilitation projects.

36. Yes, the vialytics web applications contains an Asset Based Task Management Module that empowers the user to geo-plot assets and then track and maintain them during their full life-cycle.

37. Yes, vialytics features a dynamic task management module that empowers the user to create one-time or recurring tasks to more efficiently and effectively maintain assets and miscellaneous items associated with infrastructure management.

38. vialytics will automatically create a GPS track of each individual user:

a. During a condition assessment, creating a record of all streets that have been assessed.
b. Using vialytics “Track Control”, which will track the GPS of the user, no matter the mode of transportation.
c. Using vialytics “Winter Service” which will track and create a record of the GPS of the users winter maintenance vehicle.

39. Yes, vialytics triggers road safety alerts to protect drivers, bikers, and pedestrians alike. vialytics will trigger a “Road Safety Alert " prompting the user to generate a task to fix the safety hazard. vialytics currently triggers a Road Safety alert upon identifying the following damage within the surface of the roadway:

a. Manholes: vialytics will trigger a “Road Safety Alert” if this asset is Outsticking or Lowered, relevant to the surface of the road.
b. Catch-Basins: vialytics will trigger a “Road Safety Alert” if this asset is Outsticking or Lowered, relevant to the surface of the road.
c. Severe/critical potholes.

40. vialytics includes dynamic functionality to share data multifunctional:

a. Shared internally and digitally via direct task assignment.
b. Seamless generation of printable documents.
c. Seamless generation of email with relevant data.
d. Seamless generation of Excel files directly from vialytics web-app.

41. No, vialytics would not employ any third-party entities or subcontractors for this project.

42. Due to its ease of use, users can be trained and on-boarded into vialytics in a short period of time. vialytics provides personal and on-site support for all partnership kickoffs. Sample timeline below:

1. Day One > Week Four
    a. On-site kickoff and training with vialytics Customer Success
    b. Hardware Drop Off & vialytics **Phone App** training.
    c. Complete initial road inspections / track control
2. Week Five > Week Nine
    a. Complete vialytics Core Training
    b. vialytics QA and feedback
    c. Results review + presentation
    d. Continued inspections and usage of web application (ongoing)
3. Week Ten >
    a. Ongoing support
    b. Personalized on-site training opportunity (as needed)
    c. Continued inspections & usage of web app **(Ongoing)**
    d. Quarterly Business Reviews

43. vialytics provides ongoing updates and improvements to its mobile applications and web-applications. vialytics Customer Success team offers complimentary ongoing support for the duration of the partnership.

44. Installation, onboarding, and training, can be done both remotely or on-site, depending on customer preference. vialytics prefers that initial training be done on-site to maximize training effectiveness.

45. vialytics pricing is based on the number of centerline miles managed by the purchasing agency.

TAB D - B. Proposed Scope of Service

Exhibit A: Please see attachment named TX-Share - vialytics - Exhibit A for the Description of Desired Product Categories for Proposed Pricing.

Exhibit B: Please see attachment named TX-Share - vialytics - Exhibit B for the Sample Market Basket Specifications and Pricing Form.

Exhibit C: Please see attachment named TX-Share - vialytics - Exhibit C for the Service Area Designations.