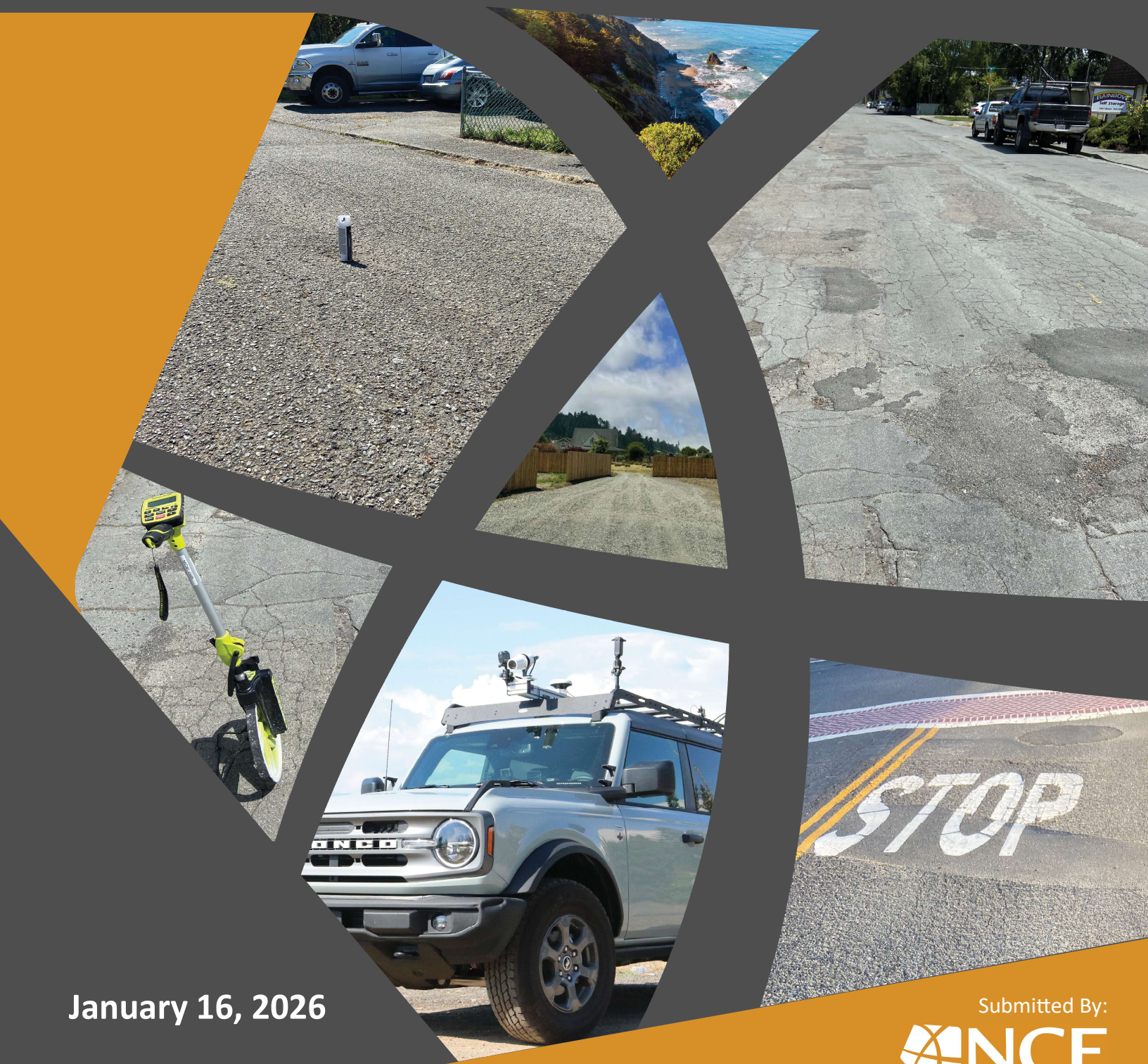
Humboldt County Association of Governments

PROPOSAL TO PROVIDE
2026 Pavement Management System Update



January 16, 2026

Submitted By:

NCE

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Pt. Richmond, CA 94804
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Reno | Lake Tahoe | Point Richmond | Oakland | Sacramento | Anaheim | Scottsdale

Cover Letter

January 16, 2026

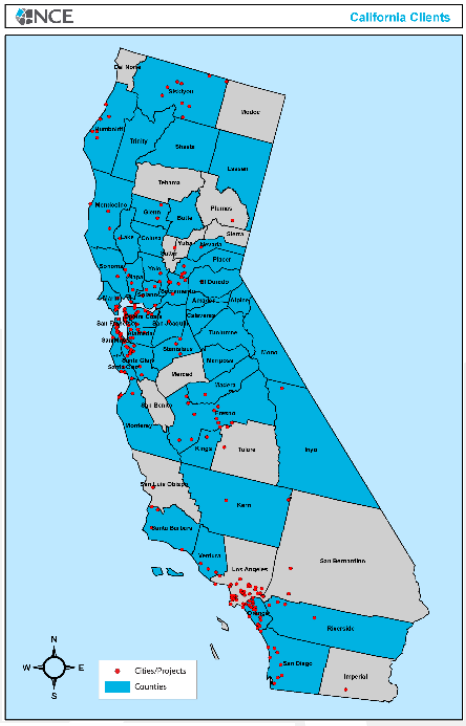
Amy Eberwein, Administrative Services Officer
Humboldt County Association of Governments
611 I Street, Suite B, Eureka, CA 95501
Proposal sent via email to: amy.eberwein@hcaog.net

Proposal – 2026 Pavement Management System Update

Dear Ms. Eberwein and Members of the Selection Committee:

NCE understands that the **Humboldt County Association of Governments (HCAOG)** is seeking a qualified firm to update Pavement Management Systems (PMS) for its member entities and Native American Tribes using the Metropolitan Transportation Commission's (MTC) StreetSaver® Online Edition. Pavement networks are critical public assets, essential for safety and mobility but costly to maintain and replace. With limited budgets, agencies need innovative, cost-effective strategies to manage and rehabilitate roadway infrastructure. An up-to-date PMS, supported by accurate pavement condition data, is vital for informed decision-making, effective maintenance planning, and maximizing available funding. Since 2009, NCE has supported HCAOG, including major PMS updates in 2009, 2016 and 2022. NCE helped HCAOG creating database for four tribal agencies under 2021 PMS update followed by another update in in 2025. This experience has given us deep insight into the region's infrastructure, standards, and priorities.

Counties like Humboldt face ongoing challenges due to inadequate funding for road maintenance. NCE's **2025 Statewide Needs Assessment** found that the jurisdictions under Humboldt County receive less than 10 percent of the funding needed for annual roadway needs. While the **Road Maintenance and Rehabilitation Act (RMRA or SB1)** will provide Humboldt County and its cities with about $8.5 million in FY25/26, future funding is expected to decline as fuel consumption drops. This will further limit local budgets, increase maintenance backlogs, and accelerate pavement deterioration. An updated PMS is essential to quantify needs, prioritize investments, and strengthen applications for supplemental funding—especially for rural and tribal communities that rely on state support.



NCE brings extensive expertise in implementing and updating PMS programs, with a proven track record of helping regional transportation planning agencies (RTPAs) such as HCAOG and its member agencies optimize the use of their available transportation funding. As a nationally recognized pavement specialty firm, we provide comprehensive services in asset and pavement management, civil and pavement design, and training.

NCE is an MTC certified consultant.

We are an MTC-certified consultant with more than 100 years of combined team experience. We are pleased to provide the following features and benefits to HCAOG.

Pt. Richmond, CA
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- **Countywide PMS Experience** – NCE has a long-standing history of implementing and updating the StreetSaver® PMS for HCAOG, serving Humboldt County, its seven cities since 2009, and tribal agencies since 2021. We have recently delivered similar countywide PMS projects for Fresno, Lake, Madera, Mendocino, Monterey, Sonoma, and Siskiyou Counties, as well as for more than 220 cities. Our team, which led HCAOG's previous PMS updates, brings extensive expertise with local and rural road networks, databases, and GIS—ensuring an efficient, cost-effective update with minimal start-up time.
- **MTC-Certified inspectors and Data Collection Vehicle** – MTC-certified inspectors and data collection vehicles: NCE's field inspectors are MTC-certified, ensuring accurate and consistent data collection. We have been a qualified MTC consultant since 1999 and have surveyed over 120,000 centerline miles of California roads. For this project, we are again partnering with märker geospatial, LLC, whose MTC-certified vehicles are equipped with pavement profiling scanners and camera systems. This combined expertise and technology will provide HCAOG with precise, high-resolution pavement data.
- **StreetSaver® Experience and Proficiency** – NCE staff have been working with the StreetSaver® program since 1987. In addition to performing PMS implementations and updates (including field surveys) for cities and counties, NCE has also conducted training workshops and beta testing for over 20 years.
- **Comprehensive Experience with Rural Counties** – NCE has worked with the Rural Counties Task Force to assess the needs of rural roads for 26 counties. Through this study, NCE has gained an understanding of the funding challenges of rural governments to maintain their roads, and we have an in-depth comprehension of the special conditions and characteristics rural roads have compared to urban roadways.
- **Innovative Pavement Strategies** – NCE leads in advanced pavement design, mix designs, and specifications, incorporating warm mixes, recycling, rubberized materials, and long-life pavements.
- **Practical Agency Experience** – NCE understands the challenges agencies face, such as limited personnel and funding constraints, and delivers proven, practical solutions to achieve successful program outcomes.
- **Sustainability Focus** – NCE helps agencies incorporate sustainable materials and recycling to reduce greenhouse gas emissions and support state climate goals.
- **Rigorous Quality Control** – Each project is assigned a dedicated QC Manager, and our field technicians receive annual training and calibration to ensure high-quality field condition surveys and deliverables.

NCE has the capability to deliver responsive, cost-effective, and high-quality pavement management and engineering-related services through a systematic and organized approach. NCE's proposed Project Manager, Debaroti Ghosh, PhD, who was the lead engineer for the HCAOG 2021/22 PMS update, and Principal, Vijay Pulijal, PE, PMP, will serve as primary contacts for all correspondence during the proposal evaluation process. Vijay is also authorized to negotiate and contractually bind NCE to HCAOG's agreement. Their contact information is below.

Vijay Pulijal, PE, PMP, Principal-in-Charge
1003 W. Cutting Blvd., Suite 110, Richmond, CA 94804
Phone: (510) 585-7587 | Email: vpulijal@ncenet.com

Debaroti Ghosh, PhD, Project Manager
1003 W. Cutting Blvd., Suite 110, Richmond, CA 94804
Phone: (510) 215-3620 | Email: dghosh@ncenet.com

This proposal and cost proposal are valid for sixty (60) calendar days from the date of submittal. We appreciate your consideration of our proposal and look forward to the opportunity to continue our collaboration with Humboldt County Association of Governments (HCAOG), the County, its cities, and tribal partners on this important project.

Sincerely,
Nichols Consulting Engineers, CHTD (NCE)

Vijay Pulijal, PE, PMP
Principal

Debaroti Ghosh, PhD
Project Manager

1. Table of Contents

2. Understanding of Project

Regional Transportation Challenges

Humboldt County and its member cities face a set of long-standing transportation funding challenges that closely mirror those encountered by many rural jurisdictions across California. Much of the roadway network - particularly in the County, Eureka, Arcata, Fortuna, Rio Dell, and the smaller incorporated cities - was originally constructed more than 50 years ago and is now reaching or has exceeded its intended service life. At the same time, traffic demands continue to increase due to residential growth, commercial activity, tourism, and agricultural operations. These pressures accelerate pavement degradation and increase the cost of maintaining a safe and reliable transportation system.

Transportation infrastructure, especially the roadway system, is one of the biggest factors affecting the long-term economic stability and resilience of the North Coast region. The region faces ongoing and compounding challenges. Wildfires, landslides, and severe weather events continue to disrupt travel on major corridors such as Highway 299, while local roads experience accelerated deterioration due to decades of deferred maintenance[1]. According to the 2021/22 Pavement Management System update, the average pavement condition index (PCI) across local roads in Humboldt County is 53, significantly below the statewide average of 65.

Rural County Challenges

NCE has extensive experience working with rural counties and understands the unique conditions affecting sparsely populated regions with varied topography, geology, and climate such as Humboldt County. Rural road networks often include diverse roadway types, non-engineered surfaces, and limited historical documentation, all of which influence pavement management decisions.

Key challenges typically include:

- Using different maintenance standards for remote, low-volume roads compared to higher-traffic or urbanized areas.
- A higher proportion of non-engineered roads (e.g., multiple chip seals over unimproved subgrade) requiring tailored treatment strategies and calibration within StreetSaver®.
- Rural networks often include a mix of paved, chip-sealed, gravel, and dirt roads, making it difficult to apply uniform maintenance standards or cost model. Please see Figure 1 below from Humboldt County local road survey in 2022.
- Incomplete or inconsistent roadway inventories due to missing signage, outdated mapping, or unclear distinctions between private and publicly maintained roads.
- Paved roads that have deteriorated to unpaved conditions, necessitating more extensive rehabilitation.
- Significant budget constraints, with funding needs often far exceeding available resources—even with RMRA support.
- Higher costs for conventional hot mix asphalt due to long haul distances, resulting in greater reliance on alternative treatments such as warm mix asphalt, chip seals, cold-in-place recycling, and full-depth reclamation.

[1] https://www.hcaog.net/sites/default/files/FY%202025-26%20OWP%20%26%20Budget%20Final_0.pdf

Figure 1. Various Surface Condition of County Roads

NCE's experience with pavement management in rural counties such as **Mendocino, Trinity, Stanislaus, Tuolumne, Shasta, Madera, Amador, Mariposa, Placer, Sonoma, Napa, Lake, Fresno, and El Dorado** gives us a thorough understanding of some of the unique aspects in HCAOG's jurisdiction.
We have also worked with the **Rural Counties Task Force** to develop 25-year projections for use in regional transportation plans.

Tribal Roadway Network Challenges

In 2022, NCE supported the Tribes/Rancherias by creating new StreetSaver® database, conducting pavement inspections, updating decision trees, performing budget needs analyses, and preparing summary reports. The Figure 2 below presents some photos from 2022 survey of the tribal agencies. In 2025, NCE again updated their PMS. Key challenges encountered during this effort included:

- Understanding each Tribes/Rancherias' treatment strategies, expectations and priorities.
- Gathering roadway information and verifying data accuracy.
- Identifying and resolving duplicate segments in the County database.
- Distinguishing roadways maintained by the County versus those maintained by individual Tribes/Rancherias.
- Accurately mapping roadway limits to support efficient field data collection.
- Maintaining continuous communication with Tribal staff to ensure database reliability.
- Reconciling field-verified limits and lengths with information provided by the Tribes/Rancherias.

Figure 2. Examples of Roadways with Different PCIs Maintained by Hoopa Valley Tribe

Funding Needs, Limitations and Future Challenges

The region faces a substantial infrastructure need. The combined county, city, and tribal roadway network has an estimated asset value of $1.55 billion and maintaining it in good condition over the next decade will require approximately $852.7 million in pavement rehabilitation and preservation (2021/22 PMS Update). Local efforts to establish dedicated transportation revenues—such as Measure U and Eureka's Measure I—were unsuccessful, leaving jurisdictions reliant on limited state formula funding.

The passage of SB1/RMRA has improved revenue stability, with total projected allocations of $8.7 million (based on State Department of Finance projection[2]) for the Humboldt region in FY 2025–26, including $6.8 million[3] for the County alone. However, based on HCAOG's FY 2025–26 Work Program and Budget, municipal budgets are expected to provide only about $82 million[4] over 10 years, resulting in a significant funding gap when compared to long-term pavement needs. The Figure 3 below presents a comparison between pavement needs and available funding based on 2021/22 PMS update.

This disparity highlights the importance of data-driven pavement management system, strategic use of state and federal funds, and the development of sustainable long-term funding strategies. It also underscores the need for accurate pavement data and consistent reporting to meet SB1 accountability requirements, including annual project submittals to the California Transportation Commission.

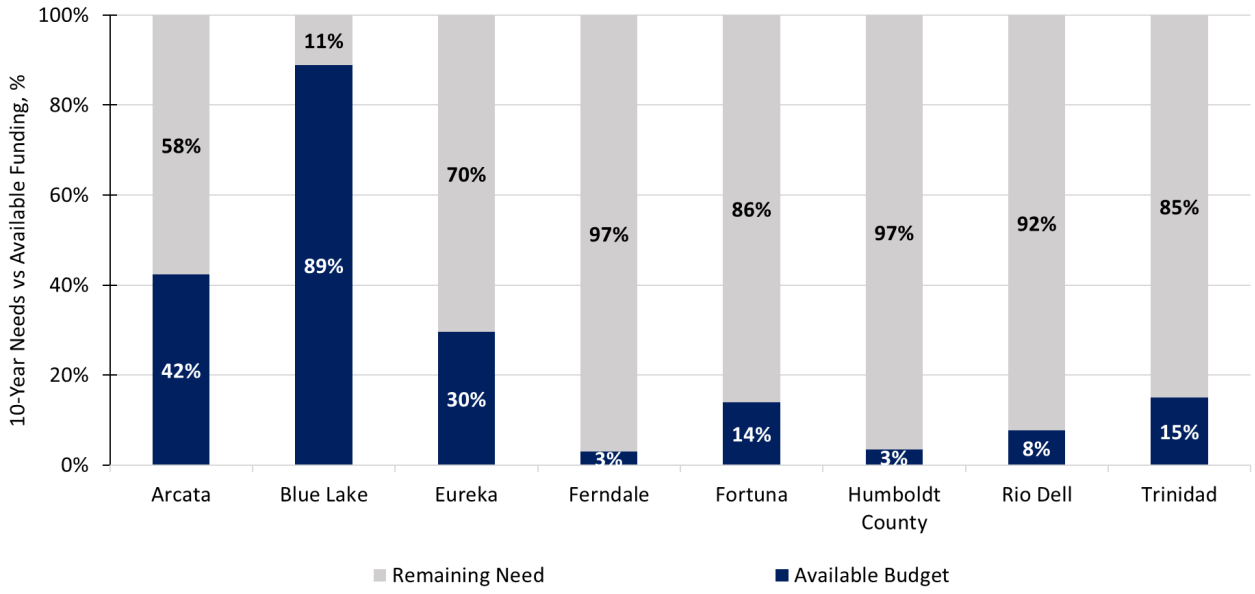


Figure 3. 10-Year Needs vs Available Funding (2021/22 PMS Update)

Integrated Pavement Management, Regional Roles, and Data Quality Assurance

A robust PMS will provide the accountability expected by Humboldt County residents while enabling cost-effective, multi-year maintenance and rehabilitation planning based on available funding. As the state-designated Regional

[2] https://www.californiacityfinance.com/LSRcicoSummaryFy25Fy26.pdf
[3] https://lostcoastoutpost.com/loco-media/loco-media/agendizer/attachment/18817/1.pdf
[4] https://www.hcaog.net/sites/default/files/FY%202025-26%20OWP%20%26%20Budget%20Final_0.pdf

Transportation Planning Agency (RTPA), HCAOG leads coordinated regional transportation planning across federal, state, local, and tribal partners. Its Board includes the County Board Chair and the mayors of the seven incorporated cities, supported by the Technical Advisory Committee (TAC) of City Engineers and Public Works Directors, who will serve as key stakeholders in the PMS update.

Because these efforts are funded with public dollars, transparency and measurable performance are essential. The Pavement Condition Index (PCI) serves as a primary performance metric and is routinely reported to elected officials and the public, ensuring that investment decisions are data-driven and cost-effective.

Ultimately, the PMS update should provide the County/Cities with two key pieces of information:

1. A multi-year work plan, which will show the city councils/board of supervisors, HCAOG and the public the most cost-effective manner of spending new revenues and which may be used to select streets for SB1.
2. A long-term funding analysis to determine future needs that will help guide elected officials in making informed policy decisions.

To ensure reliable reporting and sound decision-making, pavement condition data must be accurate and properly calibrated with the performance prediction models in StreetSaver®. Even small inconsistencies in field data collection can produce significantly different PCI forecasts, which is not acceptable for long-term planning or funding compliance.

HCAOG requires a highly qualified consultant who understands the challenges to complete the 2026 PMS update for Humboldt County and its incorporated cities using the StreetSaver® platform. NCE is uniquely positioned to deliver accurate, reliable, and consistent results based on the following demonstrated capabilities:

- Extensive familiarity with HCAOG's PMS through continuous delivery of PMS updates for the region since 2011 (Figure 4 below shows the inspected PCI from the condition survey conducted by NCE).
- Proven experience working with rural counties, including understanding of their diverse roadway conditions, funding constraints, and maintenance practices.
- Clear understanding of Tribes/Rancherias' priorities, expectations, and coordination needs as we developed the database.

These qualifications ensure that NCE can efficiently manage the project's technical, logistical, and communication requirements while providing a high-quality, regionally consistent PMS update.

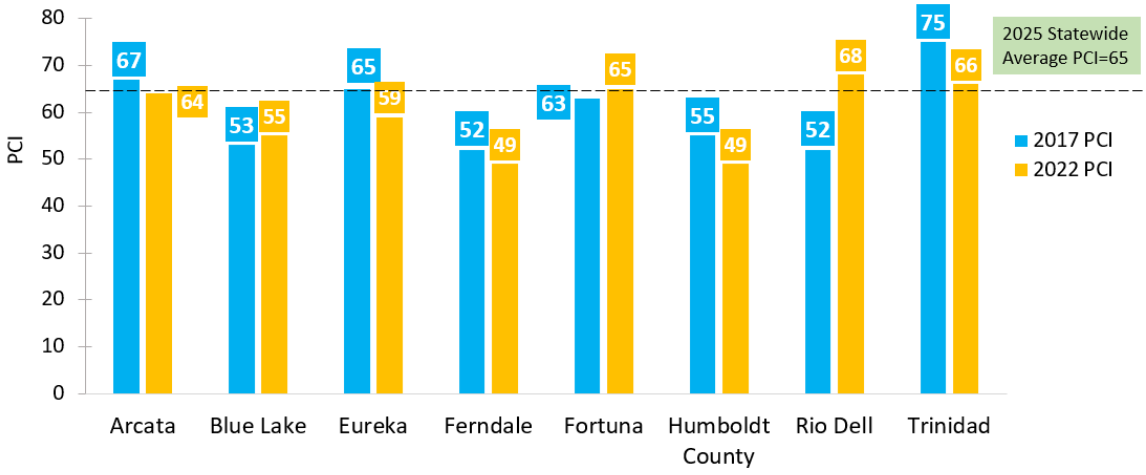


Figure 4. Inspected PCIs from 2016/17 and 2021/22 PMS Update

3. Consultant Qualifications and Experience

Firm

Firm Profile

We have enjoyed partnering with HCAOG since 2009 to implement and update the PMS for Humboldt County, its seven cities, and all tribal agencies, supporting strategic management and long-term preservation of local roadways.

NCE, established in 1990 and organized as a corporation, is a client-focused professional consulting firm integrating the disciplines of engineering, science, and planning to address the infrastructure and resource challenges facing our communities today and into the future. **For over thirty-five years, our firm has specialized in pavement technology—focusing on pavement and asset management, materials, roadway design, and applied research—which distinguishes us from other civil engineering firms.** Our leadership in pavement and materials has earned the trust of local agencies, State DOTs, the U.S. Department of Transportation, and the National Academies to deliver practical, economical, and sustainable solutions.

We have designed thousands of roadways and have delivered pavement surveys for 220+ California agencies and networks in multiple states. We have surveyed over 120,000 miles of pavements, including alleys, trails, and parking lots. Our field data collection ranges from walking surveys as per ASTM or StreetSaver® protocols to using specialized automated equipment to collect data such as pavement distresses, roughness, structural strength (deflection testing) to asset data (signs, signals, curb ramps, marking, sidewalks, etc.). We have perfected the automated approach to ensure the results are consistent and reproducible. The services we specialize in relevant to this project include asset and pavement management; pavement evaluation, testing, and design; multi-year pavement work plans; pavement impact/fee studies; civil engineering; and the research and design of sustainable, innovative pavement technologies. Over 85% of NCE's revenues come from local, state, and federal agencies providing NCE with an in-depth understanding of current regulations, policies, procedures, and best practices.

NCE has seven offices in California **(Richmond, Oakland, Sacramento, Anaheim),** Nevada **(Reno, Lake Tahoe),** and Arizona **(Scottsdale),** with over 125 technical professionals across our practice areas. **Services for this contract will be managed from our Richmond office at 1003 W. Cutting Boulevard, Suite 110, Richmond, CA 94804,** which serves as a regional hub for engineering and pavement management. Our Richmond team specializes in civil engineering projects and multi-year pavement programs, including value engineering, resurfacing, rehabilitation, road reconstruction, and pavement management solutions. NCE's collaborative structure allows all offices to share specialized pavement expertise and resources, supporting a wide range of pavement and infrastructure projects.

Proposer Disclosures

In compliance with the RFP, NCE's responses to the required company declarations are provided below.

- **Litigation** – NCE was named in a claim filed against the City of Santa Monica. The claim was not directly related to NCE's work; rather, NCE was named because it was one of several firms that provided consulting services to the City. NCE's position is that we are not responsible for the alleged damages, and our attorney is seeking a Motion of Summary Judgement to dismiss the claim. No decision has been rendered against NCE and there is no litigation that affects our ability to perform services.
- **Public Contracts** – NCE has not been convicted of fraud related to public contracts.
- **Debarments, Suspensions or Other Ineligibility** – NCE has not been subject to any current or prior debarments, suspensions, or other ineligibility to participate in public contracts.
- **Compliance** – NCE has not violated any local, state, or federal industry or regulatory requirements.
- **Ownership and Financial Interests** – NCE does not hold a controlling or financial interest in any other firms or organizations, nor is NCE owned or controlled by any other firm or organization.

Firm Qualifications

NCE's civil design engineers and technicians are experienced in preparing plans, specifications, and construction cost estimates for local and state transportation projects, as well as municipal facilities and amenities. Our team is proficient in state and local design standards, including Caltrans pavement design standards and Standard Specifications, as well as the American Public Works Association Standard Specifications for Public Works Construction, commonly known as the "Greenbook." NCE's professionals also adhere to stringent quality control procedures and guidelines, ensuring that all design documents align with industry standards and relevant local, state, and community regulations. **NCE offers innovative solutions and precise technical expertise through a range of specialized practice areas, such as civil engineering, pavement and materials management, asset management, environmental services, water resources, and landscape architecture.** An overview of select capabilities is below.

NCE Capabilities	
Asset and Pavement Management	Bike and Pedestrian Path Design
Pavement Testing, Analysis, and Design	Environmental Studies and Documents
Civil Engineering Design	Regulatory Compliance and Permitting
GIS & Database Management	Stormwater and Water Resource Management
Pavement Rehabilitation and Sustainability	Watershed Planning and Wetland Delineation
Pavement Impact and Cut Fee Studies	Sustainable Design/Low Impact Development
Deflection Testing and Coring	Construction Documents (PS&E)
GPR Testing for Continuous AC Thickness Profile	Construction Management/Inspection
Complete Streets and ADA Retrofit Design	Utility Relocation Design and Coordination
Landscape Architecture and Green Infrastructure	Stakeholder Facilitation/Public Outreach

Expertise Relevant to Requested Services

PAVEMENT MANAGEMENT EXPERTISE

NCE is a nationally known pavement specialty firm with extensive experience implementing PMS for public agencies in California and the West Coast. Our team has delivered PMS solutions for numerous cities and counties, supporting effective multi-year capital improvement planning. We are proficient with leading software platforms such as StreetSaver®, PAVER™, and Cartegraph, used by 76% of California agencies. NCE has actively participated in 10+ **Transportation Research Board** committees related to asset and pavement management and has led the **Statewide Local Streets** and **Roads Needs Assessment for the League of California Cities** since 2008, providing systematic evaluations, condition reporting, and funding strategy recommendations for California's local road network.

NCE understands that all of the agencies in HCAOG utilize MTC's StreetSaver® program; **we are an MTC certified firm and have an unparalleled familiarity with StreetSaver®.** Not only are we StreetSaver® certified, but we also train hundreds of cities and counties and have been actively involved in the beta testing and software development of StreetSaver® and StreetSaver® Plus (asset management) for 30-plus years. We offer HCAOG a wealth of knowledge and skills with PMS and utilizing the data to apply and recommend new technologies for design and rehabilitation. As an indicator of our expertise and work, NCE received MTC's award for **"Best Pavement Management Consultant."**

NCE's staff has over 30 years of experience with StreetSaver® and is certified in field data collection protocols, ensuring expert implementation and reliable pavement management solutions.

NCE team proposed includes licensed engineers and MTC-certified inspectors who have demonstrated successful performance in comparable roles for countywide PMS projects that are similar or equivalent to this one.

NCE Staff	Project Role	MTC Certification and Role	
Vijay Pulijal, PE, PMP	Principal-in-Charge	MTC Project Manager	
Debaroti Ghosh, PhD	Project Manager	MTC Certified	
Mei-Hui Lee, PhD, PE	QA/QC Manager	MTC Project Manager, Lead Instructor	
James Signore, PhD, PE	Pavement Specialist	MTC Pavement Strategies, QC Manager	
Timin Punnackal, PE	Project Engineer	MTC Project Engineer	
Sampat Kedarisetty, PhD, EIT	Project Engineer	MTC Certified	
Jolina Karam, PhD, EIT	Staff Engineer	MTC Pavement Management Analyst	
Jake Rajnowski	Senior Field Technician	MTC Certified	
Kevin Foxcroft	Senior Field Inspector	MTC Certified	
Paul Muse	Senior Field Inspector	MTC Certified	
Ken Huisman	Field Supervisor	MTC Certified/ märker geospatial	**Automated Surveys**
John Zimmer	Field Inspector	MTC Certified/ märker geospatial	

ASSET DATA COLLECTION

NCE provides comprehensive asset data collection services as a foundation for effective asset management. We collect and assess inventory and condition data for public infrastructure assets such as pavements, sidewalks, storm drains, traffic signals, and streetlights. Our services include the development of customized rating standards, GIS and asset management software integration (e.g., StreetSaver®, PAVER™, Cartegraph), and geodatabase development. NCE's expertise extends to both pavement and non-pavement assets, ADA compliance surveys, rigorous quality control, and technical training. By leveraging advanced data collection technologies and analytical tools, NCE enables agencies to make informed decisions, optimize resources, and achieve long-term infrastructure sustainability. NCE has recently performed asset data collection for the MTC P-TAP program; Shasta, Glenn, Sacramento, Contra Costa, Santa Cruz, and Sonoma Counties; and the Cities of Orinda, Scotts Valley, Oakland, Redondo Beach, and Santa Maria, among others.

PAVEMENT DESIGN & ANALYSIS

Pavement designs, plans, specifications, and estimates (PS&E) are NCE's specialty, and we offer extensive experience and expertise with pavement treatment alternatives. Our civil and geotechnical engineers not only understand the types of pavements and treatment options but also recognize the significance and cost implications of proper roadway support on competent subgrade soils to limit future settlement and cracking. Unlike traditional civil firms who rely solely on core samples, we employ our pavement survey expertise in conjunction with deflection data, continuous thickness data using ground penetrating radar (GPR), and materials testing to assess the engineering properties of the existing roadway more accurately. This comprehensive approach allows us to deliver more durable, cost-effective, and sustainable pavement solutions tailored to each client's needs.

NCE's expertise in pavement treatment alternatives includes cost-saving, innovative, and sustainable paving technologies such as warm mix asphalt and in-place recycling. Our pavement design services focus on practical, economical solutions and design procedures tailored to each client's unique needs.

SUSTAINABLE, INNOVATIVE, AND ADVANCED TECHNIQUES

Sustainability is often overlooked in pavement design, even though pavements significantly influence the economic, environmental, and social performance of local streets and roads. As communities increasingly view streets as multimodal assets—not just vehicle corridors—integrating sustainability into pavement decision-making becomes essential. At NCE, we partner with our clients to define practical, pavement-focused sustainability goals, emphasizing life-cycle considerations and informed trade-offs. We evaluate treatment strategies through economic, environmental, and social lenses to ensure long-term value.

NCE constantly seeks to identify the most cost-efficient alternatives for agencies, such as cold-in-place recycling, full depth reclamation, warm mix asphalt, and terminal blend asphalt rubber binders. Many of the technologies will meet the goals of most sustainability plans.

DEPLOYING PAVEMENT TECHNOLOGIES

Pavement sustainability plays a vital role in the economic, environmental, and social well-being of local streets and roads, which now function as integrated, multimodal transportation systems. Our civil and geotechnical engineers are experienced in a variety of pavement types, treatment options, and the cost impacts of proper design for long-term performance. We enhance traditional core sampling by combining inspection expertise with coring, deflection data, and materials testing to more accurately assess existing roadway conditions. Selecting the right pavement technology is critical, with key considerations including cost, performance, maintenance, traffic, access, pavement properties, geometry, and climate. By leveraging advanced rehabilitation techniques and materials—such as new binders, additives, and polymers—we deliver tailored solutions that extend pavement life and maximize value.

MULTI-YEAR PAVEMENT MANAGEMENT PLAN EXPERIENCE

NCE has extensive experience developing multi-year pavement management work plans for cities and counties throughout California. Our process includes budget analysis based on each agency's criteria, street selection using pavement condition index (PCI) and agency priorities, field confirmation of treatments, aggregation or grouping of streets as needed, evaluation of roads in poor condition, and the separation or combination of surface seal and rehabilitation paving programs. We prepare comprehensive final lists and maps to support effective decision-making and resource allocation. NCE has developed multi-year paving plans for similar regional transportation planning agencies, including the Fresno Council of Governments (Fresno COG), Siskiyou County Local Transportation Commission (SCLTC), Lake County Area Planning Council (Lake APC), the Transportation Agency for Monterey County (TAMC), and for Shasta, Santa Cruz, Stanislaus, Contra Costa, and San Diego Counties, among many others

GIS ANALYSIS, MODELING, AND MAPPING

NCE staff have extensive expertise in the GIS needs of public agencies and recognize the critical role of geospatial data in resource management, impact analysis, and decision-making. We develop thoughtful tools for efficient management, deployment, and sharing of spatial data—both internally and with the public. Our experience spans GIS development and analysis, cartography, and asset management for cities, counties, and regional transportation

agencies. Services include mobile data collection, integration with asset and pavement management software, advanced mapping using the latest ESRI™ software (ArcGIS® and ArcGIS Pro), and creating GIS linkages that connect pavement management and asset data directly to geospatial platforms. This approach streamlines data sharing and analysis, helping clients make informed decisions, optimize resources, and achieve their infrastructure goals.

CIVIL ENGINEERING

NCE partners with public agencies and private clients to deliver tailored solutions for pavement engineering and civil infrastructure challenges. We understand the importance of well-designed pavement systems for community connectivity, safety, and sustainability, and are dedicated to helping clients achieve resilient, long-lasting infrastructure. Our pavement-focused civil engineering services include planning, feasibility studies, assessment, design, and construction management for roadway rehabilitation, pavement preservation, Complete Streets, ADA upgrades, bicycle and pedestrian paths, and multimodal corridors. NCE's expertise spans pavement evaluation, materials selection, structural design, and the integration of green infrastructure and innovative technologies. We apply current standards and best practices from Caltrans, FHWA, and NACTO to deliver high-performing, durable, and sustainable pavement solutions.

Street Maintenance and Rehabilitation Projects
City of South San Francisco

SPECIAL EQUIPMENT

NCE can evaluate pavement structural conditions using advanced technologies such as Ground Penetrating Radar (GPR) and deflection testing with our Falling Weight Deflectometer (FWD). GPR is a non-destructive method that provides detailed subsurface profiles, allowing for the identification of layer thicknesses, moisture intrusion, and potential voids within pavement systems. FWD simulates the load of a passing wheel by dropping a known weight onto a loading plate resting on the pavement surface, with sensors measuring the resulting deflections at various distances from the load. This data helps engineers assess the stiffness and load-bearing properties of pavement layers and subgrade, identify weak spots, and determine the need for maintenance or rehabilitation. Together, these technologies pinpoint weak areas, guide rehabilitation design, and improve maintenance planning and budget optimization.

Falling Weight Deflectometer

INNOVATIVE AUTOMATED SURVEY SYSTEM

We have seen considerable advancements in technology over the last decade. The assessment of pavement condition has seen a transformation from labor-intensive "boots on the ground" efforts toward a more high-speed, "automated" vehicle survey. These surveys integrate the use of roadway sensors, and digital pavement laser scanners and even incorporate artificial intelligence (AI) technologies for data processing. Our system conducts a comprehensive "curb-to-curb" pavement survey, providing 100% full-width sampling in contrast with other automated systems that use a downward image scanning device that only assesses distresses in the travel lanes. This 100% pavement inspection area can be advantageous to local agencies by obtaining more comprehensive and precise pavement condition data, including the identification of distress near parking lanes or pavement edges. This full two-lane range and intensity LiDAR scan data is then post-processed through automation using data algorithms along with AI and machine learning tools that analyze roadway profiles to determine the pavement surface damage areas and identify the type, severity, and quality of pavement distresses to calculate PCI.

Similar Experience of Firm

NCE has implemented and updated PMS for more cities and counties than any other firm in California, serving over 220 agencies statewide. Our experience spans all regions—including the North Coast, Central Valley, Bay Area, and Southern California—and encompasses urban, suburban, and rural communities. These regional and countywide PMS programs reflect scopes of work similar in complexity and structure to the services requested by HCAOG, demonstrating NCE's ability to deliver consistent, multi-agency PMS updates. Recent projects for RTPAs and other transportation planning agencies, outside of HCAOG, are summarized below.

1. **Fresno Council of Governments (Fresno COG)** – Since 2018, NCE has implemented the StreetSaver® PMS for 9 small cities and has provided updates for 2020 and 2022. In 2024, NCE was selected by Fresno COG again to perform PMS updates for the County and 14 Cities. All the final reports were submitted successfully within deadline along with presentations to the board members.

2. **Mendocino Council of Governments (MCOG)** – NCE has provided StreetSaver® PMS support for Mendocino County and the Cities of Ukiah, Willits, and Fort Bragg since 2001, delivering data that supports both local and regional transportation planning. The most recent PMP update was completed in 2021/22, and NCE has been selected again to perform the PMS and GIS Linkage Update for cycle 2025/26.

3. **Lake County/City Area Planning Council (Lake APC)** – NCE first updated the StreetSaver® PMP and GIS Linkage for Lake County and the Cities of Lakeport and Clearlake (over 600 miles) in 2007 and has updated it every three years since then. NCE recently completed the 2021/22 PMP update, multi-year work plans and presented the results to the County Board of Supervisors and City Council.

4. **Siskiyou County Local Transportation Commission (SCLTC)** – NCE implemented a PMS for Siskiyou County and its nine Cities—Dorris, Dunsmuir, Etna, Ft. Jones, Montague, Mt. Shasta, Tulelake, Weed, and Yreka—covering nearly 1, 100 miles of roadway in 2015. From 2016 to 2020, NCE updated one quarter of the network each year under a multi-year contract. Building on this success, NCE was recently selected for the Countywide PMS Annual Update for 2024–2026, supporting SCLTC in maintaining and optimizing its transportation infrastructure.

5. **Transportation Agency for Monterey County (TAMC)** – NCE implemented a countywide regional PMS using StreetSaver® for Monterey County and seven Cities—Carmel-by-the-Sea, Del Rey Oaks, Greenfield, King City, Marina, Pacific Grove, and Sand City—covering 1,307 miles. The system was updated in 2020, and in 2022, NCE further updated the road network and asset data for Monterey County and the Cities of Greenfield, Pacific Grove, Del Rey Oaks, and Marina. The analysis showed the impacts of Measure X and SB1 funding affected the region's transportation infrastructure, providing agencies with tools to inventory pavements, assess conditions, forecast budgets, and evaluate funding scenarios, which supported multi-year work plans and informed budget and policy decisions.

6. **Metropolitan Transportation Commission (MTC)** – Since 1999, NCE has updated the PMS for 75 Bay Area cities and counties through the P-TAP grant program, now in its 26th year, providing field condition surveys, StreetSaver® database management, technical support, and training for agency staff. NCE was recently awarded the MTC's Program Manager Oversight (PMO) contract for P-TAP, a seven-year program designed to support all 110 Bay Area agencies with oversight of pavement and non-pavement asset management updates, training, and vendor coordination. While implementation is currently on hold pending federal review, our selection underscores NCE's expertise in managing complex, multi-agency programs and our long-standing partnership with MTC.

Regional/Countywide PMS Programs

The table below highlights recent regional and countywide PMS projects completed by NCE, with key members of our team actively involved in delivering these multi-agency programs.

Client	Number of Agencies	Centerline Miles	Services
Humboldt County Association of Governments	**County and 7 Cities and all Tribal Agencies**	**1,113**	**PMS Implementation & Updates**
Mendocino Council of Governments	County and 4 Cities	789	PMS Implementation & Updates
Transportation Agency for Monterey County	County and 7 Cities	1,375	PMS Implementation & Updates
Madera County	County	1,500	PMS Implementation & Updates
Fresno Council of Governments	County and 14 Cities	6,458	PMS Implementation & Updates
Lake County Area Planning Council	County and 2 Cities	600	PMS Implementation & Updates
Stanislaus Council of Governments	County and 9 Cities	1,873	PMS Implementation & Updates
Siskiyou County Local Transportation Commission	County and 9 Cities	1,073	PMS Implementation & Updates/Regional Analysis)
Shasta County	County	900	PMS Implementation & Updates
Mariposa County	County	476	PMS Implementation & Updates
Kern County	County	4,658	PMS Implementation (Arterials and Collectors only)
Tuolumne County	County	522	PMS Implementation
Amador County	County and 4 Cities/Towns	465	PMS Implementation
Placer County	County	952	PMS Update
Sacramento County	County	2,190	PMS Implementation & Updates
Yolo County	County	657	PMS Updates
Contra Costa County	County	650	PMS Updates
Sonoma County	County	1,380	PMS Updates
Marin County	County and 11 Cities	1,033	PMS Regional Analysis
Inyo County	County and 1 City	541	PMS Implementation & Updates
Metropolitan Transportation Commission	75+ Counties and Cities	>10,000 miles	PMS/PMP Updates
Orange County	County and 2 Cities	656	PMS Implementation & Updates
Totals	**>166 agencies**	**39,943+**	

Subconsultant List

NCE's completed Subconsultant List Form is included as **Attachment A in Section 7**, as required by the RFP. Subconsultant qualifications and references are provided below in the *References* section of this proposal.

Key Personnel

Project Team Overview

NCE brings a collaborative, innovative approach to HCAOG's pavement management program, backed by specialized experience and industry-leading certifications—including MTC. Our team features recognized technical leaders, MTC-certified engineers and inspectors, and specialists with direct experience supporting HCAOG on multiple PMS updates. With proven field-tested inspection plans and advanced tools—supported by märker geospatial's use of MTC-certified vehicles for automated pavement condition and data collection—we ensure project goals are met, resources are optimized, and lasting value is delivered. As we have in the past, we are confident in our ability to deliver outstanding results and achieve HCAOG's objectives.

Qualifications and Experience of Key Personnel

NCE has assembled a highly qualified team with specialized expertise in all aspects of pavement management and asset data collection. Principal-in-Charge **Vijay Pulijal, PE, PMP,** will oversee contractual obligations, project quality, staffing, and serve as a main contact for HCAOG, bringing extensive leadership and project management experience statewide. Project Manager **Debaroti Ghosh, PhD,** will lead day-to-day efforts and serve as the primary contact between NCE, HCAOG, and our subconsultant, with strong technical expertise in pavement management, design, and rehabilitation. QA/QC Manager **Mei-Hui Lee, PhD, PE,** will implement NCE's quality assurance program, drawing on her extensive experience in pavement management and maintenance. Both Debaroti and Mei-Hui have supported HCAOG on prior PMS updates, providing valuable continuity and understanding of jurisdiction needs.

Our core team also includes Pavement Specialist **James Signore, PhD, PE,** who will provide advanced technical guidance, and Project Engineers **Timin Punnackal, PE; Sampat Kedarisetty, PhD, EIT;** and Staff Engineer **Jolina Karam, PhD, EIT,** each bringing specialized pavement management and engineering experience. MTC-certified Senior Field Technicians **Jake Rajnowski, Kevin Foxcroft,** and **Paul Muse** will support field data collection and quality control. James, Sampat, Jake, and Kevin have all contributed to previous HCAOG PMS updates, offering valuable familiarity with the pavement network and local conditions. The team is further strengthened by **Ken Huisman** and **John Zimmer** of märker geospatial, recognized for leadership in automated pavement data collection. Collectively, our team's decades of hands-on expertise enable us to deliver precise data, actionable guidance, and tailored solutions that advance HCAOG's goals for reliable information, cost-effective strategies, and inclusive service to all member and tribal agencies. Résumés for key staff are included as **Attachment B in Section 7** of this proposal, in compliance with the RFP.

Legend
MTC StreetSaver® Rater Certification

Highest Degree
MS, Engineering Technology, University of Memphis TN, 2000

License/Certifications
PE – Civil, CA #76480
Project Management Professional
MTC StreetSaver® Rater Certification #1177

Vijay Pulijal, PE, PMP

Years of Experience: 22

Principal-in-Charge

Vijay is a licensed California Civil Engineer, certified Project Management Professional, and MTC-certified pavement management specialist, currently serving as a Principal Engineer at NCE. With over 22 years of experience, He has managed over 180 pavement management assignments for cities, counties, and regional planning agencies—including P-TAP funded projects across 80 Bay Area jurisdictions (covering more than 85% of the region's network), countywide PMS updates for Fresno, Monterey, Lake, Mendocino, and Sonoma, in addition to numerous multi-agency efforts across Southern California. Vijay has led large-scale StreetSaver® implementations, overseen training and QA/QC programs, and advanced AI-assisted data collection workflows for pavement distress surveys and non-pavement assets such as signs, streetlights, and signals.

Vijay's decades of experience with regional PMS updates and StreetSaver® will help HCAOG achieve its goals for the countywide PMS Update. His executive oversight and technical leadership will ensure the update process incorporates advanced data collection methods and solutions tailored to HCAOG's needs. Vijay's expertise in QA/QC, stakeholder engagement, and staff training will support data integrity, clear communication, and long-term program sustainability. By leading the preparation and review of the final report, presenting recommendations to the HCAOG Board and TAC, and guiding implementation of the updated program, Vijay will ensure all stakeholders are informed and equipped to make data-driven decisions that advance the region's pavement objectives.

Highest Degree
PhD, Civil Engineering, University of Minnesota, Twin Cities, 2018

License/Certifications
MTC StreetSaver® Rater Certification #1133

Debaroti Ghosh, PhD

Years of Experience: 8

Project Manager

Debaroti is an accomplished Project Manager and Pavement Engineer at NCE with over eight years of experience in pavement management, maintenance, rehabilitation, design, and planning for public agencies across California. She has managed and delivered PMS updates and multi-year paving work plans for numerous cities and counties and regional transportation planning agencies, including HCAOG and the Counties of Santa Cruz, Lake, Fresno, Mariposa and Marin, as well as Cities such as Santa Cruz, Scotts Valley, Davis, Fairfield, etc. She has also conducted pavement impact studies for a variety of agencies. Certified by MTC to perform pavement distress inspections, Debaroti has also co-trained on the StreetSaver® software and is proficient in a range of other pavement and design tools, including AutoCAD, MEPDG, KenPave, PaveCool, HIPERPAVE, ARCMAP, and ArcGIS.

Debaroti's experience is well matched to HCAOG's goals for the countywide PMS Update. As a lead project engineer, she has played a key role in 2021/22 PMS updates for HCAOG, leading field surveys, data analysis, and maintenance planning for over 1,195 centerline miles in Humboldt County and its seven cities. For this project, Debaroti, being the Project Manager, will lead day-to-day efforts, oversee inventory updates and pavement condition surveys, prepare the final report, and present recommendations to the HCAOG Board and TAC members. Her expertise and certifications ensure reliable data, effective staff training, and support HCAOG's goals for technical excellence and long-term pavement sustainability.

Highest Degree
PhD, Civil Engineering, National Taiwan University, Taiwan, 2009

License/Certifications
PE – Civil, CA #87635
MTC StreetSaver® Rater Certification #1167

Mei-Hui Lee, PhD, PE

Years of Experience: 13

QA/QC Manager

Mei-Hui is a licensed California Civil Engineer and recognized pavement expert with over 13 years of experience in pavement management, design, evaluation, and maintenance. She specializes in implementing and updating PMS, developing multi-year pavement work plans, and supporting pavement design. Mei-Hui is certified by the MTC inspector program and is highly skilled in condition surveys. She has led prior PMS updates for HCAOG, as well as regional programs for StanCOG, TAMC, Lake APC, SCLTC, and MCOG. Mei-Hui has also provided countywide support for agencies such as Madera, Marin, Sacramento, Mariposa, Monterey, Butte, Trinity, Kern, Shasta, Sonoma, Contra Costa, and Santa Cruz Counties, as well as the Cities of Madera, Martinez, Bakersfield, Scotts Valley, San Francisco, and Sacramento, and the Rural Counties Task Force. Mei-Hui has also led pavement design, resurfacing, and rehabilitation projects for Northern California agencies. She is well-versed with StreetSaver® and has conducted training workshops for numerous counties and cities.

As QA/QC Manager, **Mei-Hui** brings extensive experience with countywide PMS updates—including leadership on prior HCAOG projects and work with rural, urban, and tribal agencies—that will be critical to ensuring the highest quality standards for the HCAOG PMS Update. She will oversee all technical aspects, lead rigorous QA/QC processes, and serve as the final authority on the accuracy and reliability of field surveys, PCI calculations, maintenance strategies, funding analyses, and all deliverables, including those from subconsultants. Mei-Hui's attention to detail and proven track record will ensure that HCAOG receives clear, actionable, and dependable recommendations, supporting informed, cost-effective, and sustainable pavement management decisions.

Highest Degree
PhD, Civil Engineering, University of Illinois, Urbana-Champaign, 1998

License/Certifications
PE – Civil, CA #62647

James Signore, PhD, PE

Years of Experience: 27

Pavement Specialist

James is a licensed California Civil Engineer and Principal Pavement Engineer at NCE with over 27 years of experience in research, consulting, and teaching. He previously served as Director and Principal Investigator of the Pavement Research Center (UCPRC) at UC Berkeley, overseeing Caltrans and national research projects and laboratory operations. James has also consulted for San Francisco International Airport, the Port of Oakland, and numerous Bay Area agencies. He is currently Principal Investigator for Caltrans on an on-call pavement engineering services contract. James is highly experienced in countywide PMS work, providing quality control and technical oversight for PMS updates and implementations across California—including Fresno, Sonoma, Napa, Trinity, Santa Cruz, Shasta, Sacramento, Monterey, Mendocino, Lake, and Madera Counties—and has served as Pavement Specialist and QA/QC Manager for prior HCAOG PMS Updates.

James's qualifications and experience are directly aligned with HCAOG's goals for the PMS Update. As Pavement Specialist, he brings extensive expertise from similar countywide PMS updates and an understanding of local and state pavement practices. James will lead the technical aspects of inventory and pavement condition surveys for all paved streets and roads in the seven cities, unincorporated Humboldt County, and Tribal lands, ensuring accurate and consistent data collection. He will collaborate with local agencies to refine maintenance and rehabilitation strategies, provide expert recommendations tailored to each jurisdiction, and help determine realistic treatment unit costs. James's technical leadership will ensure the PMS Update delivers actionable, cost-effective strategies that support informed decision-making and long-term roadway sustainability for all HCAOG member agencies.

Highest Degree
MS, Civil Engineering, University of Nevada, Reno, 2010

License/Certifications
PE – Civil, NV #024624

Timin Punnackal, PE

Years of Experience: 16

Project Engineer

Timin is a Pavement Engineer at NCE with over 16 years of experience in transportation and infrastructure projects, specializing in city and county pavement management across California. He has managed pavement condition assessments and PCI updates for cities such as Cupertino, Redwood City, and Santa Barbara, and led the Shasta County Pavement Condition Survey and Asset Management project. Timin has extensive expertise in Southern California, delivering PMS and asset management projects—including data collection, condition assessment, scenario analysis, and multi-year work plan development—for numerous municipal and county agencies. He is proficient in StreetSaver®, PAVER™, AASHTOWare PavementME Design, and GIS tools, and regularly trains agency staff on StreetSaver®. Timin also provides engineering, technical support, and training for MTC's P-TAP program, and has delivered training for the OCTA on PMS and distress identification.

Timin will help achieve the objectives of the HCAOG PMS Update by leveraging his extensive pavement management experience with city and county agencies across Northern California. He is skilled in managing large-scale pavement condition surveys, PCI calculations, and quality control—core tasks for the update—and is highly proficient in StreetSaver® and other analysis tools to ensure accurate data and scenario analysis. Timin's expertise in developing multi-year work plans, updating maintenance histories, and training staff will provide HCAOG with reliable, actionable data, support budget optimization, and facilitate clear communication of results. His collaborative approach and responsiveness will help deliver practical recommendations and support long-term funding and policy decisions for the region.

Highest Degree
PhD, Civil and Environmental Engineering, University of California, Davis, 2025

License/Certifications
Engineer in Training, EIT – 179078
MTC StreetSaver® Rater Certification #1182

Sampat Kedarisetty, PhD, EIT

Years of Experience: 8

Project Engineer

Sampat is a Pavement Engineer at NCE with over eight years of experience in pavement design, rehabilitation, and management for cities and counties across California. He has played key roles in countywide PMS projects, including supporting the regional PMS implementation for Fresno COG and nine rural cities using StreetSaver®. Sampat has provided engineering support for previous HCAOG PMS updates and supported PMS efforts for the Counties of Lake, Kern, and Siskiyou, conducting pavement condition surveys, updating StreetSaver® databases, performing needs and budget analyses, and preparing final reports. Additionally, he has provided technical assistance to the MTC P-TAP Program, supporting over 100 jurisdictions across the Bay Area with PMS updates, data analysis, and maintenance planning. His expertise includes pavement investigations, life cycle cost analysis, Caltrans' CalME, multi-year paving plans, and technical support.

Sampat will help achieve HCAOG's PMS Update goals by leveraging his extensive countywide pavement management experience and technical expertise. He will assist with StreetSaver® database updates, add new pavement sections, and ensure pavement histories reflect current conditions. Sampat will support the PMS and GIS Linkage update by running budget and scenario analyses, generating reports and maps, and updating M&R decision trees with accurate unit costs. His experience with multi-agency projects and data analysis will provide HCAOG member agencies with reliable, actionable information. Sampat will also work closely with the Project Manager and HCAOG staff to ensure all updates and analyses align with agency priorities and project objectives.

Highest Degree
PhD, Civil, Environmental and Sustainable Engineering, Arizona State University, Tempe, AZ, 2024

License/Certifications
Engineer in Training, EIT – 77498

Jolina Karam, PhD, EIT

Years of Experience: 8

Staff Engineer

Jolina is a Pavement Engineer with eight years of experience specializing in asphalt material characterization, material rheology assessment, pavement management, pavement design, soil mechanics, pavement preservation, concrete pavement evaluation, and pavement distress identification. She is proficient in preparing PMS reports for rehabilitation and maintenance projects using ArcGIS and StreetSaver®, as well as conducting laboratory testing and developing innovative asphalt binder and mixture designs. Jolina recently supported the Fresno Council of Governments (Fresno COG) Countywide PMS Update, contributing to field data collection, analysis, and reporting for multiple agencies across Fresno County. She has also assisted with PMS updates for the Cities of Redwood City and Cupertino under MTC P-TAP Round 25 and pavement related projects for Caltrans.

Jolina will help achieve the objectives of the HCAOG PMS Update by applying her expertise in PMS, material characterization, and pavement evaluation. Her experience with PMS updates for multiple agencies under MTC P-TAP Round 25 has made her skilled in field data collection, condition assessment, and using StreetSaver® and ArcGIS for analysis and reporting. Jolina's background in collaborating on pavement-related projects for Caltrans brings valuable insight into state standards, best practices, and quality assurance protocols, which will help align the HCAOG update with both local and statewide requirements. Her technical proficiency and multi-agency experience will support reliable data, actionable recommendations, and clear communication with HCAOG member agencies.

Highest Degree
High School

License/Certifications
MTC StreetSaver®
Rater Certification
#1196

Jake Rajnowski

Years of Experience: 9

Senior Field Technician

Jake joined NCE in 2016 as a Pavement Management Technician and has extensive experience collecting distress data and coring samples for PMS. He has been actively involved in field inspections and quality control for HCAOG's previous countywide PMS updates. In addition to his work with HCAOG, Jake has supported numerous other clients, including the Counties of Fresno, Mendocino, Shasta, Madera, Trinity, Sacramento, Sonoma, Siskiyou, Santa Cruz, and Lake, as well as the Cities of Madera, Bakersfield, San Francisco, Richmond, and Sacramento. Jake is certified by MTC to perform pavement distress inspections. Beyond field inspections, he manages all aspects of data collection and is actively involved in the quality control process, including cross-checks of data in the PMS database and reviews of pavement maintenance history to ensure database accuracy. He also generates detailed reports to support data validation and quality assurance.

Jake's experience with previous HCAOG countywide PMS Updates and similar projects will be instrumental in meeting the objectives of this update. As an MTC-certified pavement distress inspector, he brings technical proficiency and quality assurance to field surveys, ensuring efficient and accurate data collection for all paved streets and roads, including those on Tribal lands. Jake's expertise in cross-checking data, maintaining database accuracy, and generating validation reports will provide HCAOG with reliable, up-to-date information for informed decision-making. He also prioritizes field safety by consistently following required protocols and using appropriate safety equipment, supporting effective and secure field operations throughout the county.

Highest Degree
BS, Business Management, Western Governors University, 2020

License/Certifications
MTC StreetSaver®
Rater Certification
#1163

Kevin Foxcroft

Years of Experience: 9

Senior Field Technician

Kevin has nine years of experience in data collection and entry, quality control checks, and updating PMS for city, county, and state agencies. Kevin is certified at both the federal and state levels—including the MTC inspector certification program—to perform pavement condition surveys. His experience also includes collecting FWD and High Speed Profilometer data to support pavement research and design. For previous HCAOG countywide PMS updates, Kevin played a central role in field data collection and quality review. He has also led field operations and quality assurance activities for pavement management and research projects for clients such as Fresno, Lake, Siskiyou, Santa Cruz, San Francisco, Stanislaus, Santa Cruz, Sonoma, and Yolo Counties, the East Bay Municipal Utility District (EBMUD), the FHWA in the western states, and through the MTC P-TAP, in addition to complex pavement design projects across California and Nevada.

Kevin's direct experience on prior HCAOG countywide PMS Updates positions him to effectively support the objectives of the current HCAOG PMS Update project. He has been a primary contributor to field data collection and quality review, ensuring that pavement inventory and condition rating surveys are conducted accurately and efficiently for all paved streets and roads, including those in the seven cities, unincorporated county areas, and Tribal lands. Kevin's expertise in data collection, quality control, and the use of advanced technologies such as FWD and High Speed Profilometer data will contribute to reliable, up-to-date PMS updates. He also maintains a strong commitment to field safety by utilizing appropriate protective equipment and complying with all required traffic control procedures during surveys to promote a safe and compliant work environment.

Highest Degree
MA, Geography
California State University, Chico, 2013

License/Certifications
MTC StreetSaver®
Rater Certification #1168

Paul Muse

Years of Experience: 13

Senior Field Technician

Paul is an MTC-certified inspector with over 13 years of experience in pavement and asset management for public agencies across California. Highly skilled in pavement condition surveys, PCI calculations, and GIS-based segmentation and linkage using ArcGIS, he is also proficient in StreetSaver® Online Version 9.0 and OSHA 10 Certified. Paul has supported approximately 6,000 centerline miles of roadway for more than 50 agencies, including the County of Sonoma and the City and County of San Francisco, and has overseen data collection and inspection for thousands of roadway miles through MTC P-TAP and other projects. Additionally, he has trained agency clients and new internal hires on StreetSaver® software and pavement inspection procedures.

Paul's expertise will help the HCAOG PMS Update project achieve its objectives by ensuring reliable pavement inventory and condition ratings for all paved streets and roads in the seven cities, unincorporated county areas, and Tribal lands. His proficiency with StreetSaver® and ArcGIS will enable efficient data collection, analysis, and integration into the PMS, supporting informed maintenance and rehabilitation planning. Paul also prioritizes field safety by wearing appropriate protective gear, such as reflective safety vests, and strictly following all necessary traffic control procedures during surveys to maintain a safe and compliant work environment.

Highest Degree
Environmental Engineering, Georgian College, ON. CAN 1997

License/Certifications
MTC StreetSaver®
Rater Certification #1215

Ken Huisman/ märker

Years of Experience: 35

Field Supervisor

Ken has over 35 years of experience in the pavement and infrastructure management consulting industry. His recent experience with NCE includes providing PMS services and serving as Field Supervisor for prior HCAOG PMS Updates, as well as working on numerous countywide PMS implementations and updates using StreetSaver®. Ken is proficient with most off-the-shelf pavement management programs and has significantly contributed to projects for the Counties of Fresno, Lake, Kern, Madera, Mendocino, Monterey, Siskiyou, Santa Cruz, Shasta, Sacramento, San Francisco, Glenn, Stanislaus, Kings, Contra Costa, Calaveras, Orange, and San Diego, as well as many Cities throughout California, such as Fresno, Martinez, Madera, Sacramento, Bakersfield, and South San Francisco. Ken's leadership is supported by Marker's MTC-certified vehicles, ensuring reliable and standardized data collection in compliance with regional requirements.

Ken of märker will help meet the objectives of the HCAOG PMS Update by overseeing and coordinating all field data collection activities to ensure accuracy, consistency, and compliance with project requirements. With over 35 years of experience in pavement and infrastructure management consulting—and as the Field Supervisor for the 2021/22 HCAOG PMS Update—Ken brings direct knowledge of the region and its unique needs. Supported by Marker's MTC-certified vehicles, Ken's expertise and leadership will ensure reliable, high-quality data collection and contribute to a successful, efficient update process for HCAOG.

Highest Degree
MS, Engineering, Univ. Las Vegas, NV. (2006)

License/Certifications
MTC StreetSaver® Rater Certification

John Zimmer/ märker

Years of Experience: 34

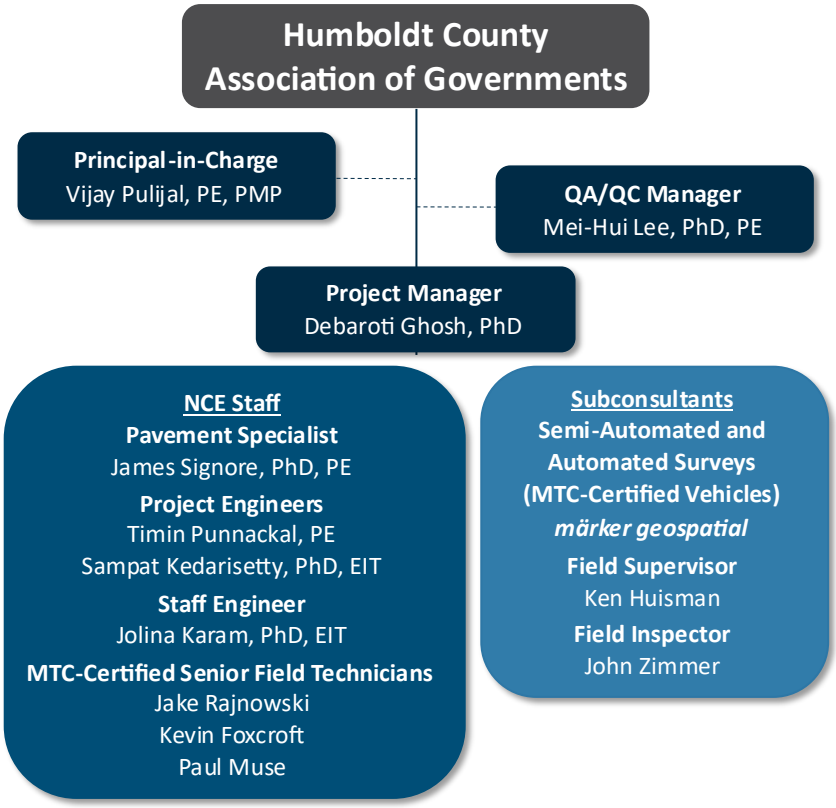
Field Inspector

John is a veteran in the transportation industry and has a wealth of experience in field data collection, data processing and analysis, GIS mapping, software program implementation, field inspection training, and quality control. He supported previous HCAOG PMS Updates as part of the märker team and has worked closely with the NCE team on several PMS projects using StreetSaver® in California. His project experience includes the Counties of Monterey, Sacramento, Shasta, Mendocino, Fresno, Glenn, Siskiyou, Madera, Kern, Lake, Kings, Santa Cruz, and San Diego. He is certified by MTC to perform condition surveys.

John will help meet the objectives of the HCAOG PMS Update by managing and executing field inspections and coordinating data collection. He will work closely with Ken Huisman and the NCE team to ensure accurate, consistent, and compliant data across all participating agencies. Having served in this role for the HCAOG 2021/22 PMS Update, John brings direct experience with the region's road network and project requirements. His expertise will help ensure the delivery of high-quality data to support a successful and efficient update process for HCAOG's multi-jurisdictional pavement management program.

Organizational Chart

The adjacent organizational chart outlines the proposed team structure, clearly delineating the roles, responsibilities, communication channels, and reporting relationships among our key personnel and subconsultants. The project personnel identified in this section have the capacity and availability to successfully support this project throughout the contract term. NCE will not replace any staff without prior written approval from HCAOG. You can trust that our team will deliver outstanding and responsive service—we are prepared to begin work upon receiving notice to proceed and are dedicated to making your project a top priority. All internal team members and subconsultant staff are managed by NCE.



Communication Channels

As Project Manager, **Debaroti Ghosh, PhD,** will serve as HCAOG's primary contact, with **Vijay Pulijal, PE, PMP,** as Principal-in-Charge and co-primary contact. They will ensure clear, consistent communication among the NCE team, HCAOG, and subconsultants for seamless project coordination. NCE will keep HCAOG informed through monthly progress reports and concise update meetings summarizing completed work, upcoming tasks, and any issues, while inviting stakeholder input. QA/QC Manager **Mei-Hui Lee, PhD, PE,** and Pavement Specialist **James Signore, PhD, PE,** will be actively involved in communications, providing quality assurance and technical guidance. Clear communication with our subconsultant **märker geospatial** will ensure efficient scheduling and reporting for automated pavement data collection. Daily contact between field crews and the Project Manager, along with prompt coordination for complex issues, will keep all parties informed and ensure timely resolution of concerns, supporting successful project delivery.

> I am pleased to recommend NCE for their outstanding pavement engineering services. NCE has provided professional and technical services for preparing PMP updates for the Stanislaus Council of Governments to assist our 10 local member agencies. **Throughout our collaboration, NCE's team exhibited remarkable responsiveness, effectively communicated their progress with multiple jurisdictions, and diligently monitored their expenditures to ensure they remained within budget.** Furthermore, NCE consistently delivered impeccably prepared work products and deliverables, always meeting deadlines with professionalism and precision…In addition, NCE conducted the StreetSaver training to support our local agencies in maximizing the benefits of the software and for acquiring skills for maintaining the database. We have been exceptionally pleased with the services provided by NCE. I highly recommend NCE for any work related to implementing or updating a pavement management program."
>
> **— Elisabeth Hahn, Deputy Executive Director of Planning, Stanislaus Council of Governments**

Problem Solving Approach

NCE addresses potential problems on the HCAOG PMS Update through proactive planning, open communication, and a commitment to quality. Our team anticipates challenges by brainstorming possible issues during project scoping and integrating contingencies into the schedule to maintain flexibility. We consistently evaluate "what if" scenarios and develop alternative solutions, applying sound science and quality engineering to resolve issues efficiently. Strong communication with HCAOG staff and close collaboration with our subconsultant märker geospatial—particularly for automated pavement data collection—ensures that any potential delays or technical challenges are promptly identified and addressed with recommended corrective actions. Our rigorous quality control program, led by our QA/QC Manager, guarantees data accuracy and high-quality deliverables, while training agency staff on PMS tools and processes builds local capacity for long-term success. This holistic, client-focused approach ensures that problems are identified early and resolved effectively, keeping the project aligned with HCAOG's goals and on schedule.

References

NCE Project Examples with References

The following pages present detailed project examples that showcase NCE's experience with countywide pavement management implementations and updates. Each example represents projects of similar size and complexity to the work requested in this RFP, with comparable scope components. For each project, we have included client reference information and encourage HCAOG to contact these clients to verify our performance. Proposed key personnel from NCE and our subconsultants, along with their respective roles, are also listed for each example. Supporting client reference letters are provided at the end of this section for HCAOG's consideration.

DIRECT PROJECT EXPERIENCE WITH THE HCAOG

Humboldt County Association of Governments | Pavement Management Systems Implementation & Updates

Client Reference:
Brendan Byrd, PE
Executive Director
Humboldt County Association of Governments (HCAOG)
611 I Street, Suite B
Eureka, CA 95501
Phone: (707) 444-8208 ext. 302
Email: brendan.byrd@hcaog.net

Project Timeline:
2009 to 2024

"NCE has been flexible in working with us… I recommend NCE's services." — **Beth Burks, AICP, former Executive Director, HCAOG**
(Full letter of reference provided at the end of this section.)

Project Description: NCE has been selected by HCAOG **four times since 2009, including the most recent update in 2021/22,** to implement a PMS covering approximately 1,195 paved centerline miles for the County and its seven incorporated cities: Arcata, Blue Lake, Eureka, Ferndale, Fortuna, Rio Dell, and Trinidad. The primary objective of these projects was to assist HCAOG member entities in making cost-effective decisions regarding roadway pavement maintenance, rehabilitation, and reconstruction.

NCE's scope of work has encompassed sectionalizing the road network into logical pavement management sections, performing field condition surveys on 1,195 miles of roads, calculating the PC, implementing a rigorous quality control program, and updating M&R history. Additional tasks included developing M&R strategies and decision trees, providing recommendations for preventive preservation and rehabilitation policies, performing funding scenario analyses—including projections for future funding and funding required to achieve PCI goals—training city and county staff on StreetSaver® operations, and preparing a final report. The final results were presented to the HCAOG Board and used to develop support for Measure U in 2016.

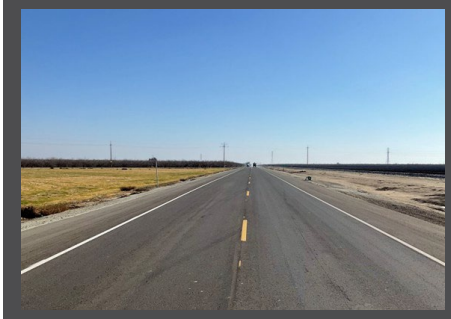
In addition, NCE developed the roadway inventory in a separate StreetSaver® database for all tribal agencies in Humboldt County. For the tribal agencies' PMP update in 2025, NCE provided software training, budgetary analysis, and Board presentations.

Project Relevancy: This project is highly relevant, featuring components identical to NCE's previous work on the HCAOG Countywide PMS update—including network sectionalization, field condition surveys, PCI calculations, quality control, M&R strategy development, funding scenario analysis, staff training, work plan preparation, Board presentations, and experience with the County's tribal roads. NCE's extensive experience with these tasks allows us to deliver the required services efficiently and effectively, enabling immediate project mobilization.

Key Staff: Mei Hui Lee (Project Manager, Senior Engineer), James Signore (QA/QC Manager), Debaroti Ghosh (Lead Project Engineer), Jake Rajnowski (Senior Field Technician), Kevin Foxcroft (Senior Field Technician), Ken Huisman (Field Supervisor/märker), and John Zimmer (Field Inspector, Data Collection Coordinator/märker).

RELEVANT PROJECT EXPERIENCE WITH SIMILAR AGENCIES

Fresno Council of Governments | Countywide Pavement Management System Implementation & Updates



Client Reference:
Pankaj Joshi
Associate Regional Planner
Fresno Council of Governments
2035 Tulare Street, Suite 201
Fresno, CA 93721
Phone: (559) 233-4148 ext. 202
Email: joshi@fresnocog.org

Project Timeline:
2018 to 2025 and Ongoing

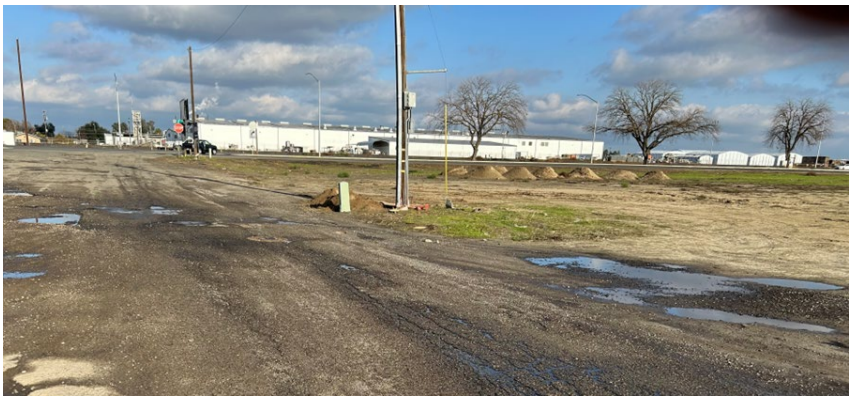
"Based on our experience, I am pleased to recommend NCE. Their commitment to quality, attention to detail, and ability to work collaboratively make them an excellent partner for any agency."
— Robert Phipps,
Executive Director, Fresno COG
(Full letter of reference provided at the end of this section.)

Project Description: The Fresno Council of Governments (COG) represents 16 member jurisdictions, many of which—particularly smaller cities—have struggled with limited funding for pavement maintenance and repair. The passage of SB1 provided a reliable funding source, allowing local governments to address deferred maintenance needs. To allocate these funds effectively, a PMS is essential for managing the network and communicating with officials and residents. Since 2018, NCE has implemented and updated the StreetSaver® PMS for Fresno COG agencies, most recently completing field inspections in 2025 and finalizing reports and regional analysis for the County and 14 cities.

The scope included verifying road inventories, conducting condition surveys on 6,458 miles of roadway, updating maintenance histories, calculating average PCI, developing maintenance strategies, performing funding analyses, creating multi-year work plans, conducting regional analysis, final reports, and presenting results to the Technical Advisory Committee (TAC) and City Councils.

Project Relevancy: NCE's work on the Fresno COG Countywide PMS update is directly applicable to the HCAOG Countywide PMS, particularly for rural and tribal roadways. The size and complexity of the Fresno COG project—spanning 16 diverse jurisdictions and thousands of roadway miles—demonstrates NCE's capacity to manage large-scale, multi-jurisdictional PMS updates. Our experience addressing the unique needs and challenges of rural agencies, combined with our ability to coordinate complex projects, makes our approach and tools highly relevant to HCAOG's countywide PMS goals.

Key Staff: Mei Hui Lee (QA/QC Manager), James Signore (Pavement Specialist), Debaroti Ghosh (Project Engineer), Sampat Kedarisetty (Project Engineer), Jolina Karam (Staff Engineer), Jake Rajnowski (Senior Field Technician), Kevin Foxcroft (Senior Field Technician), Ken Huisman (Field Supervisor/märker), and John Zimmer (Field Inspector/märker).



Lake County/City Area Planning Council | Pavement Management Update and GIS Linkage

Client Reference:
James Sookne
Senior Planner
Lake County/City Area Planning Council
367 N State Street, Suite 206
Ukiah, CA 95842
Phone: (707) 263-7799
Email: sooknej@dow-associate.com

Project Timeline:
2007 to 2023

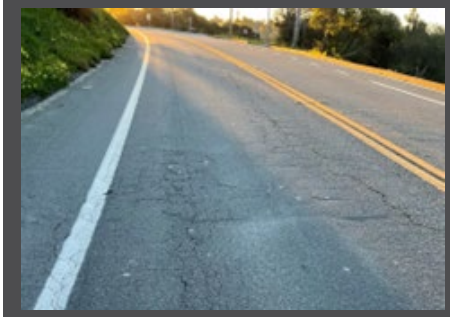
"NCE's contribution to the PMS update has been exemplary, and their dedication to delivering high-quality results is commendable. Their exceptional knowledge, attention to detail, and ability to deliver comprehensive and accurate results make them an invaluable asset to any team or organization."
— **Michael Villa, Project Coordinator/Transportation Planner, Lake APC**
(Full letter of reference provided at the end of this section.)

Project Description: The Lake County/City Area Planning Council (Lake APC) implemented a countywide PMS for the County of Lake and the Cities of Lakeport and Clearlake over 20 years ago to manage approximately 600 centerline miles of roadway. Since 2007, NCE has updated the StreetSaver® PMS and GIS linkage every three years, providing field condition surveys per ASTM D6433, PCI calculations, quality control, M&R history entry, strategy development, funding scenario analysis, GIS mapping, staff training, final reports, and presentations to local agencies. These efforts have supported transportation tax measures, including the successful 2016 street improvement measure in Clearlake, **and most recently culminated in the 2021/22 PMP update for all Lake APC agencies.**

Project Relevancy: The Lake APC PMS update is directly relevant to the HCAOG countywide PMS, particularly for rural and tribal roads. NCE's prior experience delivering PMS services for Lake County—including rural road management, field condition surveys, PCI calculations, quality control, funding analysis, GIS mapping, and staff training—provided a proven framework that was subsequently applied to the HCAOG PMS. Both projects required systematic, data-driven management of extensive and diverse networks, but the Lake APC project, completed first, established best practices and effective strategies that informed the successful implementation for HCAOG's 1,195-mile network, including tribal roads. This background ensured effective coordination, stakeholder engagement, and tailored solutions for rural and resource-limited areas, demonstrating the direct applicability of the Lake APC PMS update to HCAOG's needs.

Key Staff: Mei-Hui Lee (Project Manager, Senior Engineer), James Signore (Pavement Specialist), Debaroti Ghosh (Project Engineer), Jake Rajnowski (Senior Field Technician), Ken Huisman (Field Supervisor/märker), and John Zimmer (Field Inspector, Data Collection Coordinator/märker).

Transportation Agency for Monterey County | Pavement Management System Implementation & Updates



Client Reference:
Laurie A. Williamson, PE, QSD/P
Senior Engineer
Transportation Agency for Monterey County (TAMC)
55-B Plaza Circle
Salinas, CA 93901
Phone: (831) 775-4415
Email: laurie@tamcmonterey.org

Project Timeline:
2017 to 2024

"The NCE team knows the StreetSaver® software inside and out, and trains new users to be proficient…NCE' s experience in working with the nuances of both rural and urban pavement networks was a key factor in our program's success." — **Rich Deal, PE, TE, PTOE, Former Principal Engineer, TAMC** *(Full letter of reference provided at the end of this section.)*

Project Description: In 2017, Monterey County residents approved Measure X, a 3/8-cent sales tax dedicated to transportation improvements, with 60% of its revenue allocated to local road maintenance, pothole repairs, and safety enhancements. The measure required each jurisdiction to develop a PMS and submit regular reports on street conditions. To meet these requirements, the Transportation Agency for Monterey County (TAMC) selected NCE to implement a countywide regional PMS using StreetSaver®, covering the County and seven cities—Carmel-by-the-Sea, Del Rey Oaks, Greenfield, King City, Marina, Pacific Grove, and Sand City—for a total of 1,307 miles. The PMS enabled agencies to inventory pavements, assess conditions, record maintenance history, forecast budget needs, and evaluate funding impacts. NCE's work included systematic pavement condition surveys, database development and maintenance, regional analysis and reporting, and staff training.

In 2022, NCE was again selected to update the road network and asset data for the County and the cities of Greenfield, Pacific Grove, Del Rey Oaks, and Marina. This update involved pavement condition surveys, PMS database updates, and collection of non-pavement asset data such as traffic signs using high-resolution, geo-referenced imaging. The project integrated new street segments and maintenance histories and provided analysis of network conditions to demonstrate the impacts of Measure X and SB1 funding. NCE also developed multi-year work plans and long-term funding analyses to support informed policy decisions.

As part of the TAMC PMS Updates, NCE prepared and delivered presentations to the Board of Supervisors and City Councils to communicate technical results, funding impacts, and maintenance strategies in a clear and accessible manner for elected officials and stakeholders. NCE's support included developing draft presentations for agency review, tailoring content to the audience's background, and coordinating meetings with the Council or Board as needed. This approach ensured that policy makers and the public were well-informed about pavement conditions, funding needs, and the importance of ongoing investment in local infrastructure.

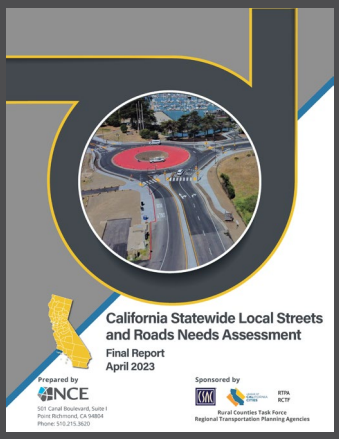
Project Relevancy: NCE's experience with the TAMC PMS is highly relevant to the HCAOG PMS Update, as both projects require implementing and updating regional PMSs across multiple jurisdictions. NCE's proven ability to coordinate with agencies, maintain comprehensive databases, conduct systematic surveys, integrate asset data, and deliver actionable analysis aligns directly with the goals and requirements of the HCAOG PMS Update.

Key Staff: Mei-Hui Lee (Senior Engineer), James Signore (QA/QC Manager, Pavement Specialist), Debaroti Ghosh (Project Engineer), Jake Rajnowski (Senior Field Technician), Ken Huisman (Field Supervisor/märker), and John Zimmer (Field Inspector, Data Collection Coordinator/märker).

County Engineers Association of California | California Statewide Local Streets and Roads Needs Assessments

Client Reference:
David Leamon
Director of Public Works
Stanislaus County Public Works Department
1716 Morgan Road
Modesto, CA 95358
Phone: (209) 409-4733
Email: leamond@stancounty.com

Project Timeline:
2017 to 2024



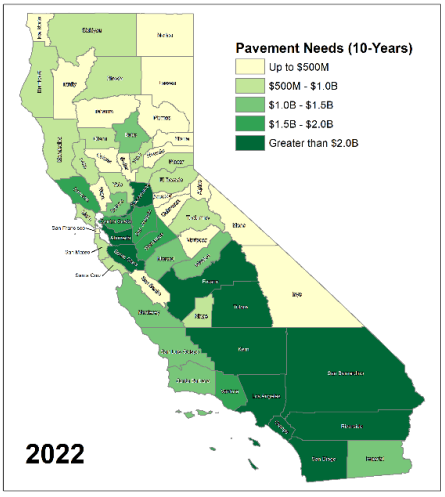
"The Local Streets and Roads Needs Assessment (LS&RNA) team hired Nichols Consulting Engineers to complete a statewide local streets and roads needs assessment study, which they completed two cycles in 2020 and 2022. We are very pleased with the outcome…We would not hesitate to utilize NCE again in the future."

— David Leamon, PE, Director of Public Works, Stanislaus County

Project Description: NCE has led the California Statewide Local Streets and Roads Needs Assessment since 2008, conducting a comprehensive study of approximately 540 cities and counties and updating it biennially. NCE was selected for the most recent cycle for 2024/25. The assessment covers over 143,000 miles of local streets and roads—more than 80% of the state's publicly maintained roadways. The study addresses key questions:

1. What are the existing conditions of local streets and roads and non-pavement assets?
2. How much does it cost to bring them up to a good condition?
3. How much will it cost to keep them in good condition over the next 25 years?
4. What is the projected available revenue in the next 25 years?
5. Is there a funding shortfall, and if so, what is it?

Non-pavement assets—such as curbs, gutters, sidewalks, storm drains, traffic signals, and streetlights—are challenging to assess due to inconsistent data collection. To address this, NCE developed a standardized methodology in 2008 that allows for consistent statewide comparisons, even with incomplete or outdated data. Key tasks include collecting and evaluating data from all agencies and applying this standardization process. Results have been shared with major stakeholders—including the Governor's office, California Transportation Commission, State Legislature, and regional agencies—and have supported advocacy efforts like the passage of SB1 in 2017, continuing to inform policy and funding decisions statewide.



Project Relevancy: This statewide assessment is highly relevant to the HCAOG PMS Update, providing a standardized framework and best practices for evaluating pavement and non-pavement assets. The tools, methodologies, and findings—such as cost projections, funding gaps, and performance measures—directly inform HCAOG's data collection, analysis, and maintenance prioritization, ensuring technical rigor and alignment with state standards. NCE's leadership ensures tailored recommendations for rural and small agencies in Humboldt County.

NCE Key Staff: Mei-Hui Lee (Senior Engineer and Pavement Task Lead), Debaroti Ghosh (Project Engineer), and James Signore (Pavement Sustainability Specialist).

Subconsultant Qualifications and References

MÄRKER GEOSPATIAL, LLC | SEMI-AUTOMATED AND AUTOMATED SURVEYS

märker geospatial (märker) has provided hundreds of successful pavement and asset management projects for municipal governments over the past 30 years, with extensive experience supporting countywide PMS programs as part of the NCE team. **märker partnered with NCE on HCAOG's previous PMS updates, delivering large-scale pavement data collection and asset management services for Humboldt County and its member agencies.** In addition, märker and NCE have successfully completed similar projects for numerous Counties, including Fresno, Calaveras, Glenn, Kern, Lake, Madera, Mendocino, Monterey, Sacramento, Santa Cruz, San Diego, San Francisco, Shasta, Siskiyou, and Stanislaus, and many cities statewide.

Their expertise includes implementing industry-leading technologies to collect, process, and deliver accurate, up-to-date pavement condition data and roadway infrastructure inventories for a wide range of public agencies. märker owns and operates a fleet of right-of-way data collection vehicles equipped with proven technologies, including an MTC-certified testing vehicle through the Vendor Certification Program (VCP), which meets the accuracy requirements specified by MTC. Unlike other consultants, NCE and märker place certified technicians in their survey vehicles to identify and confirm pavement distress data in real time, using an onboard surface distress recording subsystem with 6D LiDAR and camera systems. This collaborative approach ensures the highest quality data and supports the successful delivery of countywide PMS and asset management projects for agencies including RTPAs throughout California and beyond.

REFERENCES

Below are references that demonstrate märker geospatial's extensive experience and consistent delivery of reliable, high-quality pavement and asset management data collection services in partnership with the NCE team.

Marcos Peraza
Department of Public Works, Transportation Division
County of San Diego PWD
5560 Overland Avenue, Suite 270
San Diego, CA 92123-1204
p: (858) 226-8993
e: Marcos.Peraza1@sdcounty.ca.gov

Project Name: PMS Updates and Asset Management in 2017, 2021, and 2025. As a subconsultant to NCE, märker conducted automated pavement condition inspections using an MTC-certified vehicle and personnel, and calculated PCI values for all of the County-maintained roads, covering a 1,950-mile roadway network, with GIS mapping and digital imagery provided in a web-based StreetSaver® PMS application. **Key Staff:** Ken Husiman (Field Supervisor), and John Zimmer (Field Inspector).

Brian Russel
Assistant Director, Street Maintenance Division
City of Fresno PWD
2600 Fresno Street
Fresno, CA 93721
p: (559) 621-8650
e: brian.russell@fresno.gov

Project Name: PMS Updates in 2022 and 2025. As a subconsultant to NCE, märker conducted pavement condition inspections and calculated PCI for each city-maintained pavement section using the City's StreetSaver® PMS, covering 1,790-mile roadway network. märker utilized advanced survey equipment, combining automated technology with MTC-certified personnel to ensure accurate data collection and reporting. **Key Staff:** Ken Husiman (Field Supervisor), and John Zimmer (Field Inspector).

Client Reference Letters

HCAOG
Regional Transportation Planning Agency

611 I Street, Suite B
Eureka, CA 95501
707.444.8208
Fax: 707.444.8319
www.hcaog.net

Members:
City of Arcata
City of Blue Lake
City of Eureka
City of Ferndale
City of Fortuna
City of Rio Dell
City of Trinidad
County of Humboldt

May 23, 2023

RE: Nichols Consulting Engineers (NCE) letter of reference

Dear Proposal Selection Committee:

HCAOG has contracted with Nichols Consulting Engineers (NCE) for our most recent Pavement Management Program update, which was recently completed (March 2023). This is the second time we have used NCE for this service; the first time was in 2017. Humboldt County is a geographically large, rural county, with several small cities. Our road network is over 1,200 miles. NCE inspected all of these lane miles and for the first-time tribal roads were included in the survey.

Throughout the project I have found the entire project team to be knowledgeable and dedicated to assisting us create tool for the management of our local streets and roads. They have been especially honed into the challenges of small budgets, failing road networks, and the limitations for treatment scenarios given our location and cost of materials. This has allowed them to make recommendations that resonate with our member agencies.

Additionally, NCE has been flexible in working with us. They have accommodated a scheduling change due to our budget constraints and were willing to put in the extra effort to help our Tribal jurisdictions participate more fully in the process. They have been thoroughly responsive to member agency comments on the pavement condition surveys and draft reports and in all cases were able to satisfy the concerns or comments and produce reports our agencies can rely on.

Finally, they did an exceptional job presenting the final report summary to the Technical Advisory Committee (TAC) and the HCAOG Board. I was especially impressed at how they tailored the presentations first for an engineering audience at the TAC, and then a more policy focus in layman's terms for the Board.

I recommend NCE services. If you have any questions or need clarifications regarding this correspondence, please contact me at (707) 444-8208 or by email at beth.burks@hcaog.net.

Sincerely,

Beth Burks, AICP
Executive Director

FRESNO Council of Governments

2035 Tulare St., Ste. 201 tel 559-233-4148
Fresno, California 93721 fax 559-233-9645
www.fresnocog.org

December 11, 2025

RE: Nichols Consulting Engineers (NCE) Letter of Recommendation

To Whom It May Concern:

I am pleased to provide this recommendation for Nichols Consulting Engineers (NCE), which recently completed the Regional Pavement Management System (PMS) Update for Fresno Council of Governments (Fresno COG) in November 2025. NCE also successfully provided Fresno COG with PMS update services in 2019.

Throughout the project, NCE demonstrated exceptional professionalism and technical expertise. Their team updated pavement management systems for 15 jurisdictions and prepared a comprehensive regional technical memorandum. They worked collaboratively with local agencies and delivered detailed systemwide reports tailored to each jurisdiction. Their responsiveness and flexibility were instrumental in meeting project objectives and supporting FCOG's efforts on local streets and roads.

In addition, NCE delivered an outstanding presentation of the findings and final report to our Transportation Technical Committee, Policy Advisory Committee, and Policy Board. The presentation was well-structured, informative, and effectively tailored to the audience.

Based on our experience, I am pleased to recommend NCE. Their commitment to quality, attention to detail, and ability to work collaboratively make them an excellent partner for any agency. If you have any questions, please feel free to contact me at 559-233-4148 ext. 210 or robert@fresnocog.org.

Sincerely,

Robert Phipps
Executive Director
Fresno Council of Governments

LAKE COUNTY/CITY AREA PLANNING COUNCIL

Lisa Davey-Bates, Executive Director
www.lakeapc.org

525 S Main St, Ukiah, CA 95482
Administration: Suite G ~ 707-234-3314
Planning: Suite B ~ 707-263-7799

May 26, 2023

RE: Nichols Consulting Engineers (NCE) Letter of Reference

Dear Proposal Selection Committee,

I am pleased to write this letter of recommendation on behalf of Nichols Consulting Engineer (NCE) in recognition of their exceptional work in developing the Lake County, City of Lakeport, and City of Clearlake Pavement Management Program (PMP) update. I would like to express my sincere appreciation for the efforts of Pavement Engineer Debaroti Ghosh and the entire NCE team, who demonstrated a remarkable level of professionalism, expertise, and commitment throughout the project.

NCE's contribution to the Pavement Management Program update has been exemplary, and their dedication to delivering high-quality results is commendable. In each report, NCE went above and beyond the expected requirements by including comprehensive budget scenarios and assessing the Pavement Condition Index (PCI) for every road in the extensive 600-mile road network spanning the entire region. Their meticulous approach to surveying each road and incorporating the findings into the reports showcases their thoroughness and commitment to providing accurate and detailed information.

One of the key strengths of NCE is their exceptional knowledge and proficiency in utilizing the StreetSaver Software. During the training sessions, NCE's team displayed an impressive understanding of the software's functionalities and capabilities. They were able to answer all questions posed by the participants, demonstrating their expertise and ensuring a comprehensive grasp of the software's potential. NCE's proficiency in utilizing this software underscores their technical acumen and ability to leverage innovative tools to achieve optimal outcomes.

Furthermore, NCE's reports surpassed expectations by presenting various funding sources to support the maintenance and full depth reclamation of the pavement network. By providing network summary statistics and categorizing the roads into different functional classes such as arterial, collector, residential, rural, and more, NCE demonstrated their ability to capture the diverse needs and priorities within the road network. Their meticulous attention to detail and organizational skills ensure an efficient allocation of resources, allowing for effective planning and management of the road infrastructure.

NCE's commitment to transparency and stakeholder engagement was evident through their presentations to the APC Board, Clearlake City Council, Lakeport City Council, and Lake County Board of Supervisors. By effectively communicating the findings and recommendations of the Pavement Management Program update, NCE showcased their ability to engage with decision-makers and convey complex information in a clear and concise manner. Their exceptional presentation skills and ability to engage diverse audiences have undoubtedly contributed to fostering a shared understanding and support for the program.

Throughout our collaboration, NCE consistently demonstrated professionalism, dedication, and a strong work ethic. Their exceptional performance and commitment to delivering high-quality results have been instrumental in the successful completion of the Pavement Management Program update. I have no hesitation in recommending Nichols Consulting Engineer and Pavement Engineer Debaroti Ghosh for any future projects or partnerships requiring expertise in pavement management. Their exceptional knowledge, attention to detail, and ability to deliver comprehensive and accurate results make them an invaluable asset to any team or organization

Sincerely,

Michael Villa
Project Coordinator/Transportation Planner
Lake Area Planning Council

TAMC
PLAN • FUND • BUILD

January 15, 2020

Stanislaus County – Department of Public Works
Attention: David Leamon, PE
1716 Morgan Road
Modesto, CA 95358
Email: leamond@stancounty.com

Dear Mr. Leamon:

The Transportation Agency for Monterey County is extremely pleased with the performance of Nichols Consulting Engineers (NCE) on developing our recent county-wide pavement management program. Margot Yapp and her team delivered high-quality individual pavement management plans with conditions surveys for each City and the County of Monterey, covering 1,384 miles of roadway. NCE delivered the program on-time, within an extremely constrained budget. The NCE project management and training for agency staff were notably exceptional. The NCE team knows the StreetSaver software inside and out, and trains new users to be proficient. While Monterey County previously attempted to develop a pavement management system in-house, the task proved too daunting. With Monterey County's rural nature and topographical variation, the County's network has a tremendous diversity in roadway types and conditions over a 3,771 square-mile area. Margot Yapp and the team at NCE tackled the task by systematically collecting, evaluating, and developing the pavement network conditions to successfully complete and implement the County's first, fully functioning Pavement Management Program.

Monterey County now has a clear understanding of the pavement conditions in their network, allowing county engineers to develop strategies for maintaining the road network based on anticipated funding. NCE's experience in working with the nuances of both rural and urban pavement networks was a key factor in our program's success. NCE masterfully assisted County staff with presentations to the Board of Supervisors and City staff's to their respective Councils, which helped policy makers understand the status of their individual networks and the value of investing wisely in their infrastructure. We are grateful for the professional services we have received from NCE and offer our highest praise for their performance.

I would strongly recommend NCE and welcome any questions you may have regarding their services performed for Monterey County.

Sincerely,

Rich Deal

Rich Deal, PE, TE, PTOE
Principal Engineer, Transportation Agency for Monterey County

METROPOLITAN
TRANSPORTATION
COMMISSION

Bay Area Metro Center
375 Beale Street, Suite 800
San Francisco, CA 94105
415.778.6700
www.mtc.ca.gov

January 25, 2024

To Whom It May Concern:

RE: NCE

It is with great pleasure that I recommend NCE for its expertise in the field of pavement and transportation asset management.

NCE has been one of the MTC top consultants since 1996 and has been our Pavement Management Technical Assistance Program (P-TAP) since its inception in 1998. It has built a reputation in implementing pavement and non-pavement asset management programs for local agencies throughout the United States. Besides P-TAP, MTC has also contracted with NCE to provide StreetSaver® training and pavement management guidance for the last two decades. As far as a company to do business with, NCE is one of the best I have the pleasure to work with. Its practice has always been to pay attention to customer needs, and it has been very responsive technically and professionally. To date, all the contracts had been delivered on time and within budget.

At the staff level, I have known the president of NCE, Margot Yapp, for more than 20 years. Ms. Yapp is an exceptional project manager with outstanding communication skills and displays pride in her work. She recognizes and articulates the great scheme of work for upper management and general public consumption, yet she can focus on the fine details that support the engineering staff.

If you have any questions, please contact me at tromell@bayareametro.gov or call me at 415-778-6772.

Sincerely,

Theresa Romell

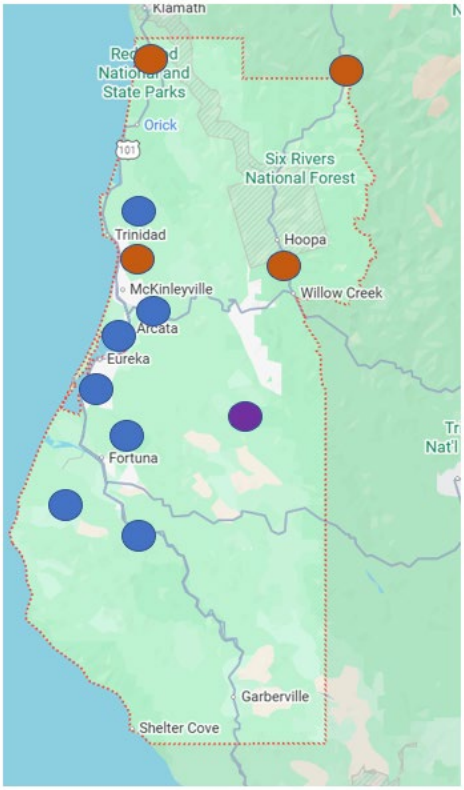
Theresa Romell
Section Director
Funding Policy & Programs

4. Approach

Project Approach

We understand that HCAOG seeks a qualified consultant to perform the 2026 PMS update for Humboldt County and its incorporated cities, utilizing the StreetSaver® software. We are very familiar with HCAOG's PMS as we had delivered the updates in 2011, 2016 and 2022. HCAOG can be assured that NCE will deliver results that are accurate, reliable and consistent.

The County/Cities' paved road network consists of approximately 1,167 centerline miles and includes public roads on Tribal Lands.



Humboldt County

Arcata
Blue Lake
Eureka
Ferndale
Fortuna
Rio Dell
Trinidad

Hoopa
Karuk
Trinidad Rancheria
Yurok

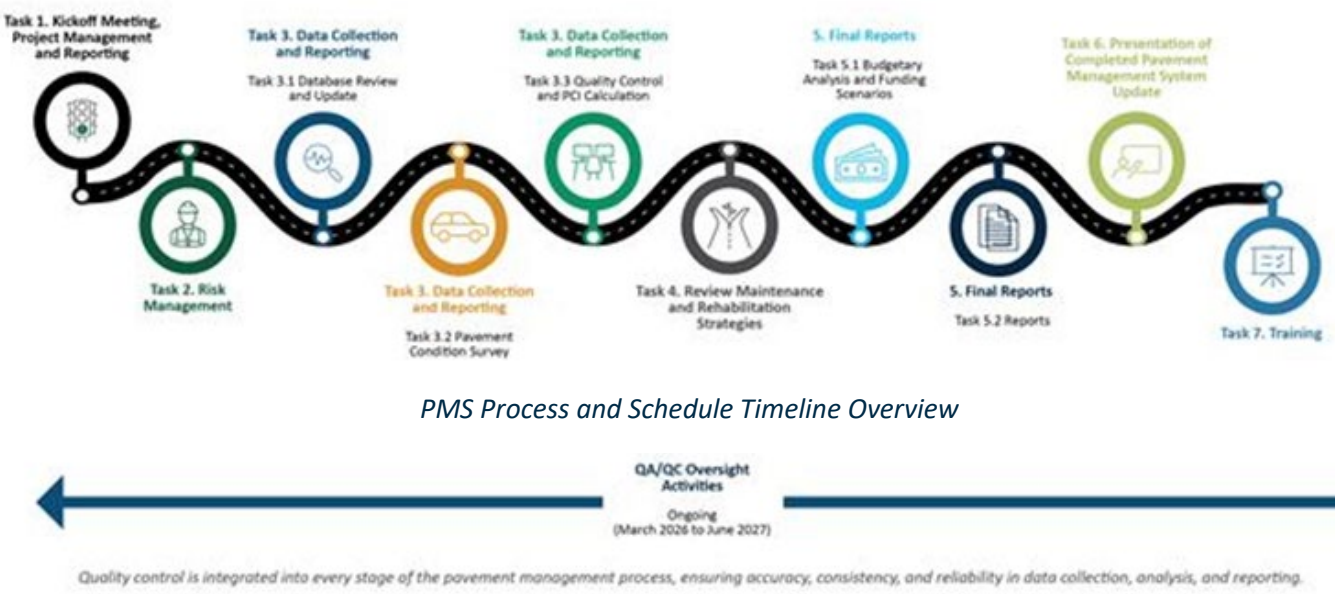
It is our understanding that HCAOG desires the selected consultant to:

- Update the road inventory for all member jurisdictions under HCAOG.
- Perform pavement condition surveys to update the PCI for each jurisdiction.
- Review and develop sustainable maintenance and rehabilitation strategies for inclusion in the decision tree.
- Perform budgetary analysis and prepare PMS update report for each participating jurisdiction.
- Prepare presentations (technical and non-technical) which include a summary of pavement network and budget recommendations.
- Perform StreetSaver® training with all member jurisdictions.

As described in the Consultant Qualifications and Experience section, NCE is extremely experienced with PMS update, as well as with all aspects of the StreetSaver® program. We will assist in recommending or implementing new paving technologies that will not just meet the PCI requirements but address any sustainable policies or objectives. Our extensive working knowledge of StreetSaver® and Humboldt County's road network will allow us to carry on this project quickly and efficiently.

Scope of Work

The following tasks outline NCE's approach to completing the HCAOG 2026 PMS Update project.



PMS Process and Schedule Timeline Overview

Task 1. Kickoff Meeting, Project Management and Reporting

NCE will provide professional engineering and technical services to update HCAOG's PMS in accordance with the RFP. This task includes:

- Conducting one project kickoff meeting.
- Facilitating up to 2 progress meetings.
- Coordinating meeting attendance and logistics.
- Preparing agendas and presenting key updates.
- Documenting meeting minutes and decisions.
- Maintaining and tracking action items.
- Providing ongoing project management and schedule oversight:
  - Preparing monthly status updates and invoices.

The following tasks describe our detailed approach and associated deliverables.

TASK 1.1 KICKOFF MEETING

NCE will first meet with HCAOG staff and local agencies to kick-off the project by reviewing the technical approach and any administrative matters that may be necessary. At a minimum, items to be discussed include the following:

- Project goals.
- Scope of work, project schedule, budget and invoicing requirements.
- Information needed from HCAOG and participating jurisdictions.
- Field work:
  - Scheduling and access requirements for field work.
  - Public safety concerns, requirements and procedures.
  - Quality Control Plan (QCP).
  - List of publicly maintained roads (as well as privately owned).
  - New roads if any.

- Schedule meeting to discuss treatment strategies.
- Paving or maintenance budgets.
- Budgeting scenarios, including historical expenditures.
- Other items as needed.

Prior to the kick-off meeting, NCE will prepare a detailed agenda and project schedule which will be sent to HCAOG staff and local agencies for review prior to the meeting.

Deliverables:

- 1.1 Kickoff meeting agenda and after-meeting summary.

TASK 1.2 PROJECT COORDINATION AND MANAGEMENT

NCE will organize and facilitate up to two progress meetings in addition to the kickoff meeting over the duration of the assignment. These meetings will ensure clear, consistent communication with HCAOG's Technical Advisory Committee (TAC) regarding task progress, schedule adherence, and budget status. Meetings will be used to review completed work, discuss upcoming tasks, and address any questions or issues that arise. In addition, NCE will maintain a detailed project schedule with key milestones and update it regularly throughout the project.

Deliverables:

- 1.2 Schedule of project meetings and project milestones.
- 1.3 Monthly status updates and invoices.

Task 2. Risk Management

NCE administers a health and safety program in compliance with Cal OSHA Title VIII, Section 3203. Generally, our safety procedures include:

- Inspectors to wear a Class 2 safety vest at all times;
- Flashing beacon on all vehicles utilized for inspections; and
- Stopped vehicles parked at locations away from moving traffic (e.g. nearby parking, shoulders etc.).

For walking survey, on roadways where there is a high volume of traffic or high speeds, additional measures may be necessary, such as:

- Inspections to occur during off-peak periods or on weekends;
- Additional inspector to watch out for traffic; and
- Traffic flaggers in extreme cases.

In extreme cases where it is not possible to walk on the pavement surface, inspections will be performed from sidewalks or raised medians. However, this is extremely rare for County/City/Tribal roadways; this is most often encountered on state highways, and lane closures are the most likely option at this point.

All NCE inspectors are required to annually update their online safety programs as administered by "Click Safety". Class Taken are:

- C2 Cal PPE.
- C2 Workzone Traffic Safety Tips.
- G2 Cal/OSHA Heat Illness Prevention.

Deliverables:

- 2.1 Written agreement confirming NCE's adherence to risk management and safety requirements outlined in Task 2 of the RFP, including implementation of all required safety measures during field activities.

Task 3. Data Collection and Reporting

This task will include the following activities:

- Reviewing the existing pavement database for all 12 participating jurisdictions.
- Updating the database with new sections, sectionalization adjustments, and treatment history (includes GIS updates if updated GIS map is available).
- Preparing documentation and materials required for the pavement condition survey.
- Coordinating field technicians and survey logistics.
- Conducting pavement condition surveys for approximately 1,167 centerline miles.
- Processing collected data and performing quality control checks.
- Identifying and correcting errors or inconsistencies.
- Calculating PCI values and finalizing the network-wide PCI for all jurisdictions.

TASK 3.1 DATABASE REVIEW AND UPDATE

Based on 2021/22 PMS Update, the table below lists Cities/County/Tribes/Rancherias maintained paved roadway centerline miles.

Jurisdiction	Approx. Centerline Miles of Paved Roads (2021/22 PMP Update)
Arcata	64.0
Blue Lake	7.1
Eureka	114.9
Ferndale	9.3
Fortuna	46.2
Rio Dell	14.3
Trinidad	2.9
Unincorporated County	854.0
Hoopa	20.0
Karuk	2.0
Trinidad Rancheria	3.0
Yurok	29.0
Total	**1,166.7**

Task 3.1.1 Add New Sections

As part of this task, NCE will review the existing StreetSaver® database inventory and coordinate with all 12 participating jurisdictions (mentioned in the table above) to identify newly added roads (not to exceed 15 miles) and confirm any required updates to the current inventory. Existing inventory will be shared in excel format with each jurisdiction before starting pavement condition survey for review. All new or modified roadway segments will be entered into the appropriate StreetSaver® database after verification of key attributes, including road name, section and street IDs, limits, surface type, functional classification, number of lanes, construction history, and roadway geometry. PCI values and inspection dates will be updated upon completion of condition surveys under Task 3.2.

Task 3.1.2 Update Existing Database

If roadway modifications or network changes occurred, NCE will evaluate and recommend sectionalization adjustments—such as combining or splitting roadway sections—to better reflect each jurisdiction's maintenance practices. Considerations will include roadway geometry, functional classification, pavement age, geographic

boundaries, treatment history, pavement performance, and historical maintenance practices. Field verification will be conducted to confirm new roads and validate data provided by each agency.

Task 3.1.3 Update Treatment History

Additionally, all historical maintenance and rehabilitation (M&R) records provided by the Cities/ County/ Tribes/ Rancherias since the last update will be incorporated into StreetSaver® as needed. Updating the database with recent M&R history is essential for accurate treatment recommendations and reliable long-term performance modeling. M&R activities include overlays, reconstructions and any surface seals or localized repairs. All M&R historical records must include the following information:

- Street Name, Street and section IDs.
- Beginning and ending limits of work.
- Date and type of treatment.
- Cost of treatment (optional).

Deliverables:

- All data collected shall be submitted (Excel format) for city/county staff to review prior to updating the StreetSaver® database.
- M&R history report.
- Updated StreetSaver® database.

TASK 3.2 PAVEMENT CONDITION SURVEY

It is our understanding that all participating jurisdictions will need to have their arterials, collectors, and local/residential roads surveyed and updated (approximately 1,167 centerline miles).

The distress collection protocols will be in accordance with the latest edition of MTC's "Pavement Condition Index Distress Identification Manual for Flexible & Concrete Pavements." The distresses present are reflective of the traffic levels as well as the local environment and climate. The "fuel" for any pavement management engine is the pavement distress data. Pavement distress provides that important set of data in determining the costs to maintain the pavement network.

This task presents the option of semi-automated survey for the entire network. Unlike walking survey (10% inspection), semi-automated survey includes inspection of 100% roadway network. In 2021/22, HCAOG utilized a hybrid approach for pavement condition surveys. The arterials and collectors of the Cities of Arcata, Eureka, Fortuna and the County were surveyed using semi-automated inspection, while the residentials and roadway network of the remaining jurisdictions were surveyed using walking surveys. For this 2026 update, semi-automated inspections will be performed for the entire network (1,167 centerline miles).

Semi-Automated Surveys

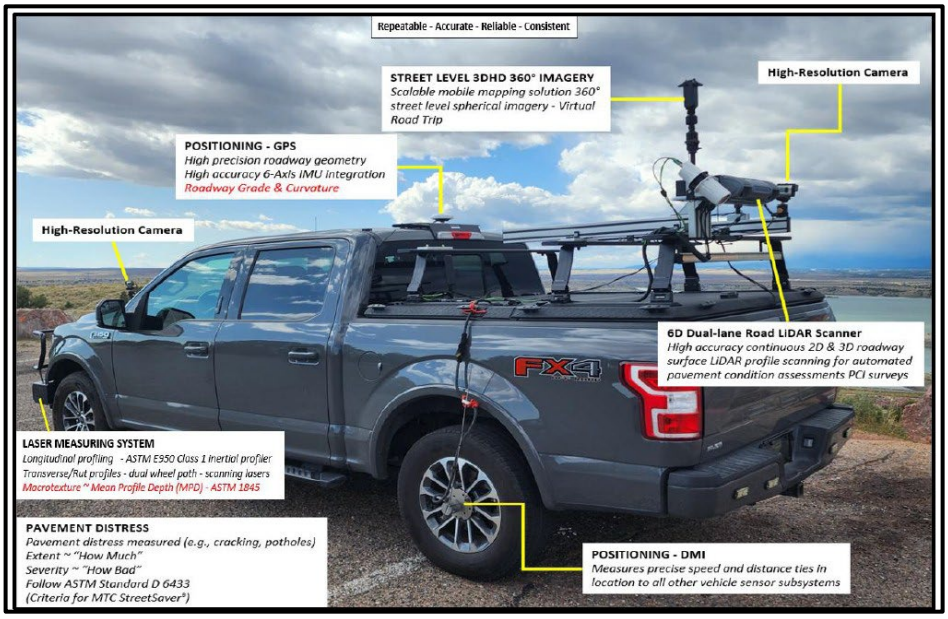
This is typically performed with a customized vehicle that uses a roadway profiling scanner that automatically collects a wide variety of pavement defects and pavement surface damage(s) using a pavement profiling scanner to capture surface profiles and 2D digital pavement images. As part of this survey, 100% of the length of each roadway segment will be surveyed. For roadway sections with four or more lanes, NCE will conduct multiple passes (at least one in each direction) to collect sufficient data.

Our system comprises many sub-components (see below) to provide automated, real-time, accurate, and repeatable roadway condition results, such as:

- Inspection survey distances.
- Longitudinal roughness "rideability".
- Crack detection and measurement.
- 2D and pavement profiles.
- Wheel track rutting depths and transverse profiles.
- 2D digital images of pavement and 360º road right-of-way (360º digital images can be used to capture other roadway/roadside assets like signs and guardrails)
- Global positioning (GPS) system integration.

The pavement distress data collection process involves the use of high-resolution 2D digital imaging technology and integrated distress laser pavement roadway scanners, which will allow us to correctly quantify the type, severity, extent, start and stop points of all MTC pavement distresses.

NCE has teamed with **märker geospatial, LLC** in this project to perform automated surveys who conducted the inspection in 2021/22 update and is well aware of the area; our team is well-positioned to collect, measure, and map all pavement condition data using a sophisticated automated approach.



A major advantage of the automated survey approach is the ability to support optional asset data collection, if requested separately by HCAOG, at an additional cost and without changing the base PMS scope. Assets such as traffic signs, pavement markings, guardrails, and signals can be collected concurrently with pavement distress data, which can reduce mobilization efforts and overall data collection time when authorized.

Regardless of methodology, our goal is to provide accurate, repeatable and economical pavement condition assessments.

Our team will be responsible for providing all equipment necessary for the performance of this task. Should County/City/Tribal staff wish to observe our field crews and testing vehicle during the inspection surveys, we will be more than happy to accommodate this. Note that this scope of work and condition surveys do not address issues including, but are not limited to traffic, safety and road hazards, geometric issues, road shoulders, sidewalks, curb and gutters, drainage issues or short-term maintenance that should be performed. ***It should be noted that an accurate road centerline shapefile will be required.***

Potential Cost Savings

From our familiarity with HCAOG's roadway network as well as our experience with other counties/cities, newly paved (PCI>90) or failed roads (PCI<25) will not change conditions dramatically from year to year. The roadways being treated between 2022 and 2025 could be also excluded from the inspection as the StreetSaver® performance model will use the treatment history to update the current PCI. Therefore, a cost savings measure would be to

conduct condition surveys only on those roads with a PCI between 25 and 90 or excluding the roadways treated between 2022 and 2025. This is a strategy that has been employed by other counties such as Lake, Mariposa and Placer. If HCAOG desires, NCE can use this approach and provide cost savings in a revised cost proposal.

TASK 3.3 QUALITY CONTROL AND PCI CALCULATION

All information collected from the condition survey will then be uploaded into the StreetSaver® database. Quality control checks are critical when a large amount of data needs to be collected and processed. Following field data collection, quality checks will be conducted. As part of NCE's goal to provide a superior quality product for our clients, we incorporate a QC component into all our projects. For this project, we have proposed the inclusion of a QC Manager, Dr. Mei-Hui Lee, PE. She will be responsible for:

- Calibrating all data collection activities.
- Reviewing field activities, including spot checks on the field crews
- Reviewing field procedures and making changes, as needed.
- Comparing the field data collected with on-site conditions.
- Reviewing all data entry functions, including random spot checks.
- Reviewing reports generated and analyses performed to ensure a quality product.

Task 3.3.1 Quality Control

For semi-automated survey, quality management practices for pavement management suggest that a one-time inspection of the final data is typically inadequate and involves a high risk of failure. We recognize the importance of effectively implementing and maintaining quality control and assurance practices for pavement distress data. Our approach will integrate quality management and control procedures throughout the entire data collection and delivery process.

NCE will implement a robust, multi-step QA/QC process for semi-automated survey, including:

Multiple Data Verification Methods

Comparison with M&R Data: Distress data will be cross-checked against recent maintenance and rehabilitation records.

- Historical PCI Comparison: Since PCI typically drops by 3–5 points per year, sections outside this range will be flagged for review.
- Desktop Review by Certified Inspectors: Randomly selected sections will be reviewed by certified pavement inspectors to verify accuracy.
- Approximately 35 sections representative of various geographical locations, functional classes and different PCI ranges will be inspected 100% using walking survey which will be used to calibrate the semi-automated data if necessary.

Systematic Quality Checks

NCE will review field procedures, compare field data with on-site conditions, and conduct random spot checks of data entry. Special attention will be given to ensuring consistency between automated surveys and manual inspections.

Technical Validation

All processed data will undergo final technical validation before being integrated into the PMS database. This will include checking data completeness, format consistency, and logical validation of condition values. Automated data collection systems will be operated by certified technicians, ensuring reliability and consistency.

A draft QC Plan will be submitted to HCAOG for approval, and no field work will commence until a final plan has been accepted. Our QC Plan meets MTC's requirements for all 100+ jurisdictions in the Bay Area and will include the following components:

- Description of condition survey procedures (sampling, distress types, severities). All procedures, changes or modifications should be well documented in the QC Plan so that future updates will be consistent.
- Accuracy required for data collection or acceptability criteria. Typical examples include accurate identification of distress types 95% of the time or 90% of re-inspected sections must be within ±10 PCI points.
- Description of how data will be checked for accuracy, e.g., control sections set up and distress comparisons between walking and semi-automated surveys.
- Comparison of past and current PCI ratings, e.g., if the difference in PCI is more than 2 to 3 points per year, then NCE will research the cause, which may be unrecorded maintenance, premature pavement failures, incorrect survey data, etc.
- Safety procedures.

Task 3.3.2 PCI Calculation

Following quality control, NCE will next perform the pavement condition index (PCI) calculations and correct any errors found. PCI listing report(s) will be prepared and submitted to the County/City/Tribal jurisdictions.

Deliverables:

- Quality control plan
- All data collected shall be submitted (Excel format) for County/City/Tribal staff to review prior to updating the StreetSaver® database.
- Updated StreetSaver® database with pavement distress data and PCI calculated.
- Pavement Condition Index (PCI) Report

Task 4. Review Maintenance and Rehabilitation Strategies

This task includes:

- One group meeting with all participating jurisdictions.
- Discussing current and preferred maintenance and rehabilitation treatment strategies.
- Documenting feedback, questions, and technical considerations.
- Reviewing recent bid tabs and cost information.
- Updating treatment unit costs based on local and regional data.
- Revising and finalizing the M&R decision tree for each jurisdiction (including one round of review of draft decision tree by each jurisdiction).

NCE will meet with City and County staff to review and confirm appropriate maintenance and rehabilitation (M&R) strategies, treatment options, and unit costs. This review will include evaluating both conventional and emerging treatment technologies—such as Portland cement concrete overlays, bonded overlays, rubberized asphalt, rubberized cape seals, microsurfacing, rejuvenators, cold in-place recycling (CIR), full-depth reclamation (FDR), and warm mix asphalt—to determine their suitability for local conditions and agency practices.

NCE's pavement engineering expertise, combined with extensive experience in Northern California jurisdictions, enables us to recommend solutions that are practical, cost-effective, and sustainable. Dr. James Signore will contribute technical guidance based on his ongoing research and recent work developing pavement maintenance and design guidelines for the Cities of Sacramento and Stockton and the Counties of Madera, Mariposa, Sacramento.

Development of the M&R decision tree is a critical component of the PMS update, as it significantly influences the final work plan and associated funding needs. Given the substantial increase in construction costs over the past decade, NCE recommends finalizing treatment strategies and unit costs prior to performing budget analyses. To support this effort, NCE will review recent bid tabs from participating agencies and neighboring jurisdictions. Unit costs will be fully loaded and will account for construction, design, inspection, and testing costs to ensure accurate long-term funding projections.

This task includes one group meeting and expects all jurisdiction under HACOG to attend the meeting to discuss treatment strategies.

Deliverables:

- M&R meeting agenda.
- M&R decision trees updated in StreetSaver® databases.

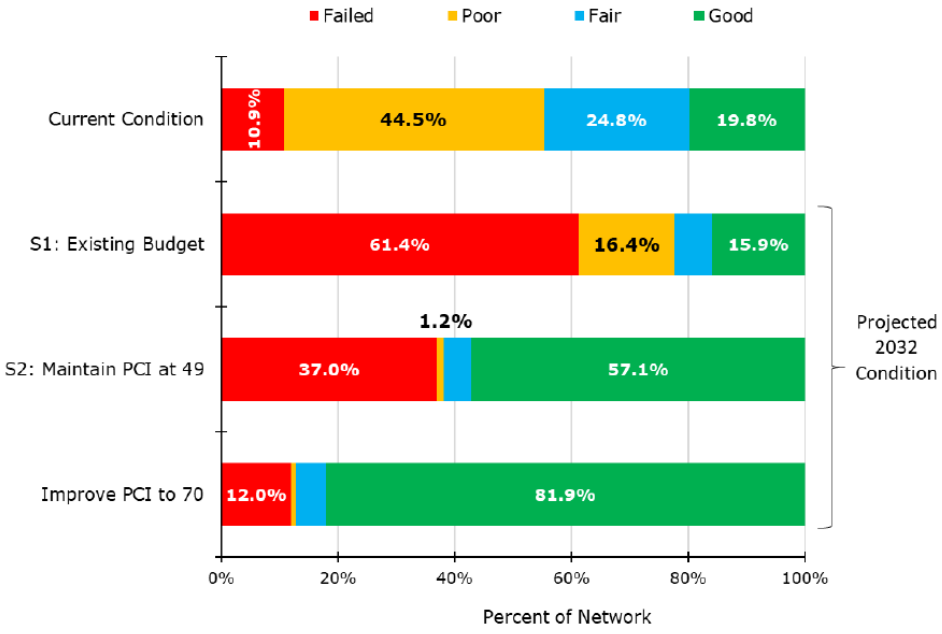
Task 5. Final Reports

This task includes:

- Performing a comprehensive budget needs analysis.
- Developing up to four funding budget scenarios.
- Preparing supporting graphs, charts, and summary tables.
- Drafting individual reports for all participating jurisdictions (12 jurisdictions based on RFP).
- Incorporating comments and revisions from each jurisdiction through one round of review.
- Finalizing the PMS reports for each jurisdiction.

TASK 5.1 BUDGETARY ANALYSIS AND FUNDING SCENARIOS

NCE will perform a budget needs analysis for those jurisdictions participating in this task using an analysis period to be determined by the jurisdiction. This will identify M&R requirements for each roadway section and also determines the total maintenance and rehabilitation requirements over the entire analysis period. The needs analysis identifies roadway sections that need treatment and applies the M&R decision trees to each section. The costs are then summed for the entire period. This forms the basis for performing budget scenario evaluations, which optimize the roadway sections for repair under constrained budgets. The chart below is an example of the impacts of different funding on the PCI conditions.



The **budget scenarios** evaluation prioritizes sections for repair under constrained, realistic, budgetary assumptions.

In simple terms, the Budget Needs analysis answers the questions: "If I have unlimited funding for street maintenance and repair, which streets should I fix? When should I fix them? What treatments should I apply? How much will it cost?"

Multiple budget or target-driven scenarios (maximum of four) will be performed after discussion with HCAOG staff. Examples of typical scenarios include:

- Impacts of existing funding levels or projected revenues based on historical trends, e.g., SB1, Measure L fund.
- Funding required to maintain certain PCI levels.
- Funding to improve the PCI.

Simply put, this module answers the question: "If I only have limited funds for street maintenance and repair, which streets have the highest priority for repairs, when should I perform the repairs, and how much will it cost?"

After the analysis is completed, NCE will prepare a report for each participating jurisdiction under HCAOG.

The report will contain, at a minimum, the following information:

- Executive Summary.
- Study Objectives.
- Description of methodology.
- Inventory of all roadways.
- Current pavement conditions for all road classes (arterials, collectors and local streets).
- Projected PCI under existing funding levels over the next five to ten years for all road classes.
- Projected annual repair/rehabilitation programs for road maintenance for a multi-year period.
- Multi-year plan for road maintenance, resurfacing, rehabilitation and reconstruction.
- Impact of deferred maintenance (backlog) on the overall network condition.
- Recommended funding scenario.
- Recommended pavement strategies.
- GIS maps to show impacts of scenarios.

NCE will deliver the draft report to the Cities/County/Tribes/Rancherias for review in electronic format. Upon receipt of the comments on the draft report, NCE will complete the final report for submittal. Given the involvement of multiple jurisdictions, draft deliverables will be issued on a rolling, jurisdiction-by-jurisdiction basis to support timely review and coordination.

Deliverables:

- Draft reports (electronic).
- Final reports (two copies to the agency, one copy to HCAOG).
- Updated StreetSaver® databases.

Task 6. Presentation of Completed Pavement Management System Update

This task includes:

- Preparing a detailed technical presentation for the HCAOG Technical Advisory Committee (TAC).

- Presenting the completed Pavement Management System (PMS) update to the TAC for review and feedback.
- Preparing a separate, non-technical presentation tailored for the HCAOG Board.
- Summarizing key findings, PCI results, funding needs, and recommended strategies in a clear and accessible format.
- Addressing questions from both technical and non-technical audiences.
- Incorporating any final feedback or direction from TAC and the Board into the concluding project deliverables.

NCE will make presentations to both the TAC and HCAOG Board. This may be a short (15 to 20-minute) informational item or could be a longer (1-2 hours) educational/advocacy workshop, depending on the HCAOG's needs. NCE has recently completed similar presentations to the Fresno COG Measure C Steering Committee and Sacramento Counties as well as for the Cities of Novato and Richmond.

NCE's value to the HCAOG is the information that we can provide from other agencies and the results of tight budgetary constraints. We can share the perspective of our work from the California Statewide Needs Assessment study, which included an assessment of all 540 cities and counties.

This task includes one videoconference with the HCAOG staff prior to the presentation to discuss items such as the goal of the presentation, the level of knowledge and background(s) of the audience, the number of stakeholders involved and other potential issues. NCE will deliver the draft presentation to the Cities/County/Tribes/Rancherias for review in electronic format. Upon receipt of the comments on the draft presentation, NCE will complete the final presentation and schedule the Council/Board meetings.

Deliverables:

- PowerPoint presentation for TAC.
- PowerPoint presentation for HCAOG Board.

Task 7. Training

This task includes:

- Providing one full day of hands-on computer training.
- Delivering the training via Zoom or another virtual platform.
- Covering all major functions of the StreetSaver™ program.
- Ensuring interactive instruction with opportunities for questions.

NCE will prepare and present a one-day computer, hands-on training class. The class will cover the following items:

- Creating or editing street sections.
- Entering pavement distress data.
- Performing PCI Calculations.
- Entering maintenance and rehabilitation history.
- Revising the M&R decision tree:
  - Identifying treatment strategies.
  - Determining appropriate unit costs.
- Determining Budget Needs.
- Creating budget scenarios:
  - Project selection tools.
  - Target-driven analysis.

  - Needs analysis.
- Generating reports:
  - Pre-defined reports.
  - Budgetary reports.
- Generating GIS maps.

All training materials will be developed and provided by NCE. Training is expected to be delivered via Zoom or a comparable virtual platform, with participating agencies. It is assumed that computers and internet access will be provided by HCAOG or local jurisdictions and one staff per jurisdiction will attend the training.

NCE has trained more than 100 agencies throughout California in the use of StreetSaver®, including preparation of all instructional materials and delivery of fully interactive training sessions. Upon completion of the training, County/City/Tribal staff will be able to run additional funding scenarios, adjust assumptions, and generate updated multi-year work plans independently.

Deliverables:

- Training manuals.
- Training logins for StreetSaver®.

Task 8. Asset Data Collection (Optional)

If requested by HCAOG, NCE can provide optional asset data collection services such as traffic signs, pavement markings, guardrails, signals, and other non-pavement assets using the same automated survey platform. A preliminary list of potential non-pavement assets can be discussed during the kickoff meeting to confirm whether HCAOG has interest in collecting any additional asset types. Based on that discussion, HCAOG may select which assets, if any, are appropriate to include. NCE will then prepare a separate scope of work and provide a cost estimate on a per-asset basis. This optional task is not included in the base PMS update scope and would be authorized separately; however, if approved, collecting these assets concurrently with pavement condition surveys can result in mobilization efficiencies by completing the work in a single field effort.

Challenges and Approach to Countywide Pavement Management System Update

Updating a regionwide PMS for HCAOG involves several inherent challenges, including ensuring consistent data across multiple jurisdictions, coordinating with diverse jurisdiction staffs, integrating rural and tribal roadway networks, and maintaining accurate field information. These complexities are often compounded by varying pavement conditions, limited funding, and state and federal reporting requirements.

NCE approaches these challenges with a structured, client-focused methodology built on proactive planning, strong communication, technical rigor, and a comprehensive QA/QC program. Our approach ensures that potential issues are identified early, addressed efficiently, and resolved in a way that keeps the project aligned with HCAOG's goals, schedule, and performance expectations. The key elements of our approach are outlined on the following pages.

Proactive Planning:

- Anticipate challenges early through project scoping and "what-if" scenario planning.
- Incorporate schedule contingencies to maintain flexibility.
- Standardize data collection protocols across all jurisdictions.

- Plan for integration of rural, tribal, and non-engineered roadways.
- Adapt quickly to jurisdiction needs and respond to unforeseen issues.
- Review StreetSaver database (inventory), GIS linkages, decision trees, treatments and unit costs before inspections.
- Utilize certified inspectors for consistent field ratings.

Strong Communication:

- Maintain continuous coordination with HCAOG staff and all member jurisdictions.
- Establish clear expectations and roles at project start.
- Engage consistently with tribal and rural stakeholders.
- Identify scheduling or data inconsistencies early and provide corrective actions.
- Ensure transparency and stakeholder buy-in throughout the process.

Quality Assurance:

- Implement a dedicated QA/QC process led by a QA/QC Manager.
- Perform cross-checks of field data, database entries, and maintenance histories.
- Ensure consistency and accuracy across all jurisdictions.
- Calibrate StreetSaver® performance models for reliable forecasting.
- Deliver defensible, audit-ready results that support informed decision-making.

Building Local Capacity:

- Provide training on StreetSaver® and PMS workflows.
- Enable agencies to run their own scenarios and update data independently.
- Offer ongoing technical support and troubleshooting as needed.
- Strengthen long-term self-sufficiency and regional consistency.

Project Management Approach for Effective Project Completion

NCE's project management approach is centered on effective project completion through collaboration, innovation, and proactive problem-solving. We strategically assign experienced project managers and assemble teams with the right expertise to address each project's unique requirements. By understanding the client's overall objectives, we maximize value, anticipate challenges, and ensure high-quality, cost-effective results. For HCAOG, our team includes seasoned engineers, pavement experts, MTC-certified inspectors, and a specialty subconsultant, all with extensive experience supporting RTPAs, including HCAOG. We establish clear team organization and communication from the outset, enabling us to meet deadlines, stay within budget, and efficiently achieve project milestones. Our project managers utilize proven management tools, regular progress meetings, and transparent reporting to monitor progress, address issues promptly, and keep all stakeholders informed. NCE's approach emphasizes flexibility and responsiveness, allowing us to adapt to changing project needs and client priorities. We draw on lessons learned from similar projects to identify risks early and implement effective solutions, ensuring a smooth project delivery process. This disciplined, client-focused approach ensures technically sound, high-quality project delivery and successful project completion, resulting in strong client satisfaction and long-term partnerships.

5. Work Plan & Schedule

The following Work Plan and Schedule outlines our approach to completing the project within HCAOG's anticipated project timetable mentioned under Section IV of the Request for Proposal document, beginning the week of March 2, 2026, through June 30, 2027, and provides a detailed schedule of major tasks, milestones, meetings, deliverables and assumptions. Estimated staff and hours to ensure timely and efficient project delivery are presented under Section 6 "Cost Proposal" below.

TASK DESCRIPTION	2026										2027					
	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June
Task 1 - Kickoff Meeting, Project Management and Reporting																
Task 1.1 Kickoff Meeting	X Kickoff Meeting															
Task 1.2 Project Coordination and Management						X Progress Meeting						X Progress Meeting				
Task 2. Risk Management																
Task 3. Data Collection and Reporting																
Task 3.1 Database Review and Update																
Task 3.1.1 Add New Sections	Database Review and Update															
Task 3.1.2 Update Existing Database																
Task 3.1.3 Update Treatment History																
Task 3.2 Pavement Condition Survey			Semi-Automated Survey and Data Processing													
Task 3.3 Quality Control and PCI Calculation																
Task 3.3.1 Quality Control							QC and PCI Calc √									
Task 3.3.2 PCI Calculation																
Task 4. Review Maintenance and Rehabilitation Strategies								X Finalizing Decision Trees √								
Task 5. Final Reports																
Task 5.1 Budgetary Analysis and Funding Scenarios										Budget Analysis						
Task 5.2 Reports											Draft and Final Report √					
Task 6. Presentation of Completed Pavement Management System Update															X Presentations	
Task 7. Training															X Training	

Assumptions

1. "X" assumes video-conference meetings which will occur during a TAC meeting (TAC meeting is scheduled during the first Thursday of every month at 2:30 p.m.)
2. "√" indicates major deliverables- finalized PCI list by end of October, Decision Tree by end of November and Final Reports by end of April.
3. Task 3.1 assumes that all necessary data for updating database will be collected from the HCAOG jurisdictions within 3 weeks of the Kickoff Meeting.
4. Task 3.2 assumes 4 months to complete the semi-automated survey after finalizing database update.
5. Task 4 assumes one group meeting for treatment strategy discussion where at least one representative from each participating jurisdiction will be present. If no feedback is received during the meeting for a jurisdiction, the existing decision tree will be used with updated treatment unit cost.
6. Task 4 assumes one round of review from the client, 2 weeks to review and finalizing decision tree by the end of November for all participating jurisdictions.
7. Task 5.2 includes one round of review of the draft report by the client, 2 weeks to review the draft report and finalizing all the reports by the end of April.
8. Given the involvement of multiple jurisdictions, draft deliverables will be issued on a rolling, jurisdiction-by-jurisdiction basis to support timely review and coordination.
9. Task 6 includes one technical and one non-technical presentation following the submission of the final reports. Presentation dates will be determined at a later time.
10. Task 7 includes one day of virtual StreetSaver® training. The training date will be determined at a later time.

6. Cost Proposal

Task Description	Hours by Personnel					Subconsultant	Reimbursible Cost		Total Cost
	Principal-in-Charge/ QC Manager	Project Manager	Pavement Engineer	Field Technician	Project Administrator	Marker/ MTC	Lodging/ Per Diem	NCE Vehicle	
	$240/Hr	$190/Hr	$145/Hr	$108/Hr	$90/Hr				
Task 1 - Kickoff Meeting, Project Management and Reporting									
Task 1.1 Kickoff Meeting	1	8	5	0					$ 2,485
Task 1.2 Project Coordination and Management	3	16			16				$ 5,200
Task 2. Risk Management									
Task 3. Data Collection and Reporting									
Task 3.1 Database Review and Update									
Task 3.1.1 Add New Sections		2	12						$ 2,120
Task 3.1.2 Update Existing Database		2	12						$ 2,120
Task 3.1.3 Update Treatment History		2	12						$ 2,120
Task 3.2 Pavement Condition Survey	2	10		320		$ 103,700	$ 9,640	$ 500	$ 150,780
Task 3.3 Quality Control and PCI Calculation									
Task 3.3.1 Quality Control		16							$ 3,040
Task 3.3.2 PCI Calculation		8	16						$ 3,840
Task 4. Review Maintenance and Rehabilitation Strategies	2	10	24						$ 5,860
Task 5. Final Reports									
Task 5.1 Budgetary Analysis and Funding Scenarios		2	96						$ 14,300
Task 5.2 Reports	4	6	96						$ 16,020
Task 6. Presentation of Completed Pavement Management System Update	4	16							$ 4,000
Task 7. Training		10				$ 1,200			$ 3,100
Total Labor Hours by Personnel	**16**	**108**	**273**	**320**	**16**				
Total Cost			**$ 99,945**			**$ 104,900**	**$ 9,640**	**$ 500**	**$ 214,985**

Assumptions

- Task 1 assumes videoconferencing for 3 meetings (1 kickoff meeting, 2 progress meetings) and includes project management.
- Task 2 assumes no cost.
- Task 3.1 includes adding up to a total of 15 centerline miles and updating treatment history since the last update.
- Task 3.2 includes 35 days of semi-automated surveys for up to 1,182 centerline miles, 5 days of control section survey and reimbursable costs of per-diem, lodging and vehicle.
- Task 3.3 includes quality control of the field data, PCI calculation and finalizing PCI lists for all participating agencies.
- Task 4 includes one group meeting to discuss treatment strategies, bid-tabs review and preparation of individual decision tree for all participating agencies.
- Task 5.1 includes four budget scenarios for each jurisdiction.
- Task 5.2 includes 12 draft reports, one round of review from the client and finalizing the draft reports.
- Task 6 assumes videoconferencing for 2 PowerPoint presentations (one technical for TAC members and one non-technical for HCAOG Board members).
- Task 7 includes 1 day of virtual StreetSaver® training and cost of 6 training account setups by MTC. It is assumed that the login credentials will be shared if participants are more than 6 people.

7. Required Attachments

RFP Attachments

NCE's completed **Subconsultant List Form (Attachment A)** and **Key Staff Résumés (Attachment B)** are provided on the following pages in compliance with the RFP.

SUBCONSULTANT LIST – RFP EXHIBIT C

The proposal shall include a complete list of all proposed subconsultants. All subconsultants listed must be provided a meaningful element of work within the defined scope of work. Changes to this Subconsultant List will not be allowed without prior written approval from RTPA.

Proposed Subconsultants

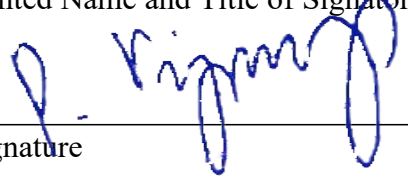
Subconsultant Firm Name and Address	Scope of Work	Dollar Amount of Work
Name: märker geospatial, LLC Address: 15954 Jackson Creek Parkway, Suite B-226 Monument, CO 80132	märker will perform semi-automated and automated surveys on the entire network within the County, Cities, and Tribal agencies as part of Task 3 (approximately 1,167 centerline miles).	$103,700
Name Address		$0.00
Name Address		$0.00
Name Address		$0.00
Name Address		$0.00
Name Address		$0.00

Nichols Consulting Engineers, CHTD (NCE)

Name of Lead Firm

Vijay Pulijal, PE, PMP, Principal

Printed Name and Title of Signatory



Signature

January 16, 2026

Date

Vijay Pulijal, PE, PMP

Principal-in-Charge

Vijay is an experienced Principal in Charge, Principal Engineer, and Asset Management Lead at NCE, with over 22 years of expertise in both pavement and non-pavement infrastructure. He is recognized for his forward-thinking approach, leading innovative pilot studies that integrate Artificial Intelligence (AI) technologies into asset management processes to enhance data collection and decision-making. Since March 2023, Vijay has spearheaded AI-assisted initiatives for evaluating pavement distress and managing non-pavement assets such as traffic signs, streetlights, and signals, driving scalable and precise solutions for public infrastructure.

As a licensed Professional Engineer and certified Project Management Professional (PMP), Vijay has managed 180+ projects—including extensive PMS projects for cities, counties, and regional transportation planning agencies—consistently delivering cost-effective, high-quality results for public agencies. His leadership and ability to blend emerging technologies with traditional asset management have earned him a trusted reputation among clients seeking to modernize their operations. Vijay's expertise is further demonstrated by his recognition as a 'Power User' for StreetSaver® by the MTC, highlighting his proficiency with the StreetSaver platform as well as GIS-based tools and asset management software.

Representative Projects

Pavement Management System Updates

County of Sonoma, CA

Project Manager. Vijay led a four-year contract to update Sonoma County's PMS for its entire 1,380-mile network. He managed a team of MTC-certified field technicians and subconsultants, coordinating both manual and automated pavement condition surveys in accordance with MTC's PCI Distress Identification Manual. Vijay's responsibilities included creating inspection databases, supervising field crews, ensuring quality assurance, and preparing comprehensive analyses and reports. He worked closely with County staff to address their needs, developed inspection data for innovative treatments, and supported scenario planning for additional funding.

Vijay also collaborated with the County's engineering and testing lab staff to modify the StreetSaver® decision tree, incorporating newer pavement technologies and optimizing treatment strategies. These efforts led to significant cost savings, such as reducing program costs from $2.5 billion to $1.4 billion by implementing full-depth reclamation (FDR) in place of traditional reconstruction. Vijay and his team proactively shared PMS

Education
MS, Engineering Technology, University of Memphis TN, 2000
BS, Civil Engineering, Osmania University, India, 1999

Registrations and Certifications
Professional Engineer – Civil, CA #76480
Project Management Professional (PMP), PMI
MTC StreetSaver® Rater Certification
OSHA 10-Hour Construction, ClickSafety

Affiliations
American Public Works Association (APWA)
Construction Management Association of America (CMAA)
American Society of Civil Engineers (ASCE)

Joined NCE
2024

Total Years of Experience
22 years

knowledge with surrounding communities, resulting in efficient project delivery and helping the County meet its budget and schedule expectations. (2013–2016 and 2021–2024). Building on this experience, Vijay and NCE were recently awarded a new contract to continue updating and improving Sonoma County's PMS from 2025 to 2028, further supporting the County's commitment to effective pavement management and innovation.

10-Year Local Road Program

County of Monterey, CA

Project Manager. Prior to joining NCE, Vijay worked to develop the County's 10-Year Local Road Program, funded through Transient Occupancy Tax revenues, to maximize roadway coverage while applying best practices in pavement M&R. The program included confirming centerline mileage, updating the StreetSaver® database, and performing GIS analysis to link pavement data with Supervisorial District boundaries, ensuring equitable distribution of roadway investments. NCE collaborated with County staff to refine the decision tree, update unit costs, and generate funding scenarios that prioritized one community in each district per year. The result was a comprehensive, data-driven roadmap balancing technical needs with equity considerations. Deliverables included the updated StreetSaver® database, GIS shapefiles, budget needs reports, funding scenarios, and final documentation for County decision-makers.

2019-2026 StreetSaver® Technical Assistance

Metropolitan Transportation Commission, CA

Principal Engineer. Vijay provides QA/QC on distress data and budget analyses, supports agencies with technical guidance on StreetSaver® use, and reviews final deliverables to ensure quality and consistency with MTC standards. NCE has been involved in numerous projects related to the development, implementation, and training of the StreetSaver® program. NCE implemented the StreetSaver® Pavement Management Program in more than 200 agencies since 1994. NCE has been a Pavement Technical Assistance Program consultant since Round 1 in 1998/1999. This includes NCE's technicians and engineers being certified in the MTC's certification program. NCE has been involved with the beta testing of different versions of the StreetSaver® software since 1994 and has been a member of the software development team. NCE has trained users on the StreetSaver® software since 1997, including the development of the training materials, ensuring interaction in the training, and conducting the training. NCE provides services related to the development of the StreetSaver® software and provides training workshops and seminars. The overall training and support program is provided by MTC twice per year in Oakland and once per year in Southern California. Depending on the workshop, the audience has ranged from managers to clerical/administrative staff members that perform data entry. The bulk of the attendees, however, have been engineers and maintenance staff who work with local streets.

Pavement Management System Update

Monterey Peninsula Airport District, Monterey, CA

Project Engineer/Lead Engineer. Vijay led the segmentation, inventory, and condition assessment of 8 million square feet of airport pavement, identifying and recording up to 16 types of pavement distresses per segment. He created and managed distress survey databases, performed quality assurance, and imported data into MicroPAVER™ PMS software to calculate PCI values. Vijay also updated the agency's PMS with current unit costs, modified and split pavement sections as needed, generated budget scenarios and reports, and developed work plans. The project required careful coordination due to a restrictive schedule and heightened security on the military base, as well as unique climate-related pavement conditions. Despite these challenges, the team completed the project on time and within budget.

Debaroti Ghosh, PhD

Project Manager

Debaroti is an accomplished Project Manager and Project Engineer with extensive experience delivering a wide range of pavement engineering projects. She has managed large-scale countywide and agency-wide pavement management, maintenance, rehabilitation, and design projects for Northern California agencies at NCE, leading teams in developing multi-year paving work plans and achieving client goals. Her expertise includes directing asphalt material characterization, laboratory testing, and advanced pavement testing programs using technologies such as GPR, rolling density meters, and FWD. Debaroti also oversees soil mechanics evaluations, pavement preservation strategies, concrete pavement assessments, and pavement distress identification, with a strong background in data and structural analysis. Recently, she has been instrumental in assisting agencies with analyzing impact fees related to utility cuts and waste vehicle damage which is a potential source of local funding for pavement maintenance. She is proficient in pavement and design software, including AutoCAD, MEPDG, KenPave, PaveCool, HIPERPAVE, Matlab, StreetSaver®, ARCMAP, and ArcGIS, and is certified by MTC to conduct condition surveys. Debaroti has collaborated on various projects with various DOTs, the National Road Research Alliance, and the National Center for Asphalt Technology.

Representative Projects

Pavement Management System Updates

Humboldt County Association of Governments (HCAOG), CA

Lead Project Engineer. Debaroti significantly contributed to the implementation and multiple updates of the PMS for Humboldt County and its seven incorporated cities, covering over 1,195 centerline miles. She was responsible for coordinating field condition surveys, conducting PCI calculations and quality control, and updating maintenance and rehabilitation histories. Debaroti also supported the development of preventive maintenance and rehabilitation strategies, funding scenario analyses, and training for city and county staff. The project included the first-time inclusion of tribal roads and addressed the unique challenges of rural networks and limited budgets, with results presented to the HCAOG Board to support funding initiatives.

Pavement Management System Updates

Various Cities and Counties, CA

Project Manager. Debaroti managed all aspects of project delivery, including coordinating the project team, maintaining communication with City staff, tracking schedules and budgets, and ensuring all deliverables met NCE's

Education
PhD, Civil Engineering, University of Minnesota, Twin Cities, 2018
MS, Civil Engineering, University of Oklahoma, 2014
BS, Civil Engineering, Bangladesh University of Engineering & Technology, 2010

Registrations and Certifications
MTC StreetSaver® Rater Certification #1133

Affiliations
American Society of Civil Engineers
Women in Transportation Engineering
Association of Asphalt Pavement Technology

Joined NCE
2018

Total Years of Experience
8 years

quality standards. The project involved comprehensive pavement condition surveys, PCI calculations, maintenance and rehabilitation recommendations, budget needs analysis, and development of a five-year work plan for the City's 258 centerline miles of streets, bike paths, and parking lots. Debaroti utilized the StreetSaver® platform to analyze data and develop prioritized maintenance strategies, supporting the City's funding applications and long-term pavement preservation goals.

Pavement Management System Updates

City of Elk Grove, CA

Project Manager. Debaroti managed the City of Elk Grove's annual Pavement Management System (PMS) updates, overseeing all aspects of project delivery for over 570 centerline miles of streets. She led the team in conducting comprehensive pavement condition inspections, updating treatment histories, performing GIS updates, and completing detailed budget analyses using the StreetSaver® platform. Debaroti coordinated closely with City staff to ensure data accuracy and timely reporting, developed multi-year maintenance and rehabilitation work plans, and provided recommendations to optimize pavement preservation strategies. Her efforts supported the City's funding applications, capital improvement planning, and long-term asset management goals. In addition, Debaroti also assisted the City in developing an appropriate measure to assess pavement damage from the extra organics refuse vehicles and their associated vehicle impact fees.

Regional Pavement Management System Updates

Fresno County Council of Governments (Fresno COG), CA

Task Manager and Project Engineer. Debaroti supported countywide PMS updates for 16 jurisdictions, covering over 6,000 centerline miles. Her responsibilities included establishing and verifying the road network inventory, conducting pavement condition surveys, updating maintenance and rehabilitation histories, calculating PCI, and developing M&R strategies. She played a key role in preparing multi-year prioritized work plans, performing regional funding analyses, and presenting results to technical committees and city councils. Debaroti's work helped local agencies prioritize SB1 funds and effectively communicate pavement needs to stakeholders.

Pavement Management Updates and GIS Linkage

Lake County/City Area Planning Council (Lake APC), CA

Project Engineer. Debaroti supported PMS updates for the County of Lake and the cities of Lakeport and Clearlake, covering over 600 miles. She was involved in field surveys, PCI assessment, and the development of comprehensive budget scenarios and multi-year work plans. Debaroti's technical proficiency with StreetSaver® and her attention to detail ensured accurate reporting and effective communication of findings to the APC Board and city councils. Her work contributed to efficient resource allocation and long-term pavement preservation planning.

Develop Multi-Year Paving Work Plans

Various Cities and Counties, CA

Project Manager and Project Engineer. Debaroti has extensive experience developing multi-year paving work plans for a range of cities and counties. Since 2018, she has worked with Contra Costa County, initially creating their 7-year work plan and providing annual updates. For the City of Martinez, Debaroti implemented a zone-based work plan strategy in 2021, dividing the city into five zones and focusing improvements in one zone per year—an approach that streamlined treatment grouping, reduced mobilization costs, minimized traffic disruptions, and improved project predictability for residents. She has also developed multi-year work plans for the City of Davis since 2020, as well as for Santa Cruz County and the City of Folsom..

Mei-Hui Lee, PhD, PE

Quality Assurance and Quality Control (QA/QC) Manager

Mei-Hui Lee is a well-known pavement expert with a PhD in civil and pavement engineering and more than 13 years of extensive experience in pavement management, design, evaluation, and maintenance projects. As Project Manager and Associate Engineer at NCE, Mei-Hui leads a wide range of pavement and civil design, as well as pavement and asset management projects for public agencies across California. She has managed numerous turnkey implementations and updates of pavement management systems for counties, cities, and regional transportation planning agencies, and is highly regarded for her technical leadership and project delivery.

Mei-Hui is recognized for her considerable experience as a QA/QC Manager, where she has established and overseen rigorous quality assurance and quality control protocols to ensure the accuracy and reliability of pavement data and project deliverables. She is certified by the MTC inspector certification testing program and is an expert in performing condition surveys. Mei-Hui is extremely well-versed in the use of StreetSaver® and has conducted training workshops for numerous counties and cities, sharing her expertise with agency staff and industry peers. She also brings a wealth of knowledge on the new accountability measures for RMRA funding, helping clients navigate compliance and reporting requirements. Mei-Hui's reputation as a trusted advisor and her commitment to quality make her a valued resource for agencies seeking innovative and reliable pavement management solutions.

Education
PhD, Civil Engineering, National Taiwan University, Taiwan, 2009
MS, Civil Engineering, Columbia University, New York, 2012
BS, Civil Engineering, National Taiwan University, Taiwan, 2002

Registrations and Certifications
Professional Engineer – Civil, CA #87635

Affiliations
American Society of Civil Engineers
Nevada Water Resources Association
American Public Works Association

Joined NCE
2014

Total Years of Experience
13 years

Representative Projects

Pavement Management System Updates
Humboldt County Association of Governments (HCAOG), CA

Project Manager and Senior Engineer. Mei-Hui has led PMS implementations and multiple updates for HCAOG, covering 1,195 centerline miles for Humboldt County and seven incorporated cities, as well as tribal agencies. She managed field condition surveys, PCI calculations, rigorous quality control, maintenance and rehabilitation history updates, and development of multi-year work plans and funding scenarios. Mei-Hui provided training on StreetSaver®, presented results to the HCAOG Board, and has supported successful funding initiatives such as Measure U.

Countywide Pavement Management System Updates
Siskiyou County Local Transportation Commission (SCLTC), CA

Project Manager. Mei-Hui managed the implementation and annual updates of the countywide PMS for Siskiyou County and its nine incorporated cities, covering over 1,073 miles of paved roads. She was responsible for scope

development, budgeting, scheduling, coordination, and quality control. Her work included directing data collection, PCI calculations, asset data collection, GIS updates, and the development of multi-year prioritized work plans and funding analyses. Dr. Lee's leadership ensured thorough reporting and technical excellence, helping local agencies demonstrate funding needs and supporting presentations to the SCLTC Commission.

Regional Pavement Management System Updates

Fresno County Council of Governments (Fresno COG), CA

QA/QC Manager. Mei-Hui Lee led the quality assurance and quality control program for the current regional PMS update, supporting 16 jurisdictions and over 6,000 centerline miles. She was responsible for developing and implementing rigorous QA/QC procedures, reviewing and validating field data, PCI calculations, and funding scenarios, and ensuring the accuracy and consistency of all final deliverables. Mei-Hui coordinated closely with project teams and agency staff to resolve data discrepancies, provided technical guidance on best practices, and conducted training to maintain high standards throughout the project. Her expertise ensured reliable results that helped agencies prioritize SB1 funds, develop multi-year work plans, and effectively communicate pavement needs to stakeholders and decision-makers.

Pavement Management System Updates

County of Santa Cruz, CA

Project Manager. Mei-Hui has managed the County's most recent PMS update in 2024/25, as well as the County's PMS update in 2017/18. She oversaw all aspects of project delivery, including field condition surveys, PCI calculations, data analysis, and the development of multi-year maintenance and rehabilitation work plans. Dr. Lee was instrumental in developing the County's 5-year work plan, coordinating closely with County staff, ensuring compliance with state and federal reporting requirements, and presenting findings to the Board of Supervisors. Her leadership supported the County's funding strategies and long-term pavement preservation planning.

Pavement Management System Update

County of Shasta, CA

Project Manager and Senior Engineer. Mei-Hui has managed PMS updates for Santa Cruz County since 2017/18, supporting a network of about 600 centerline miles. She led pavement inspections, data analysis, development of multi-year work plans, GIS linkage updates, and presentations to the Board of Supervisors. Her work included funding plan development, support for emergency road repairs, and analysis of refuse truck impacts, ensuring the County's PMS met state and federal reporting requirements and supported effective maintenance planning.

Pavement Management Peer Review and PMS Implementation and Updates

County of Madera, CA

Project Manager and Senior Engineer. Mei-Hui has managed all aspects of the County's PMS, including implementation, data collection, quality control, GIS integration, and budget analysis. She led a peer review of the County's existing road system data (over 2,000 miles), evaluated previous software and data, and developed a roadmap for a fully functional PMS. Mei-Hui oversaw the 2018 countywide PMS update—covering pavement condition surveys, maintenance and rehabilitation strategies, GIS updates, budget analysis, and Board presentations—and was selected again to lead the County's most recent PMS update in 2023. In addition, Mei-Hui recently supported the City of Madera's most recent PMS update, providing technical guidance and quality assurance to ensure successful project delivery.

James Signore, PhD, PE

Pavement Specialist

James is a Principal Engineer at NCE, specializing in pavement design, evaluation, rehabilitation, maintenance, materials assessment, and training. He has designed pavements for numerous local agencies, the California Department of Transportation, and for heavy vehicle applications at airfields and ports. James has directed an AASHTO Materials Reference Laboratory-certified and Superpave mix design-equipped research laboratory and is highly knowledgeable in state and local pavement practices and specifications.

With over 27 years of experience teaching "Techniques for Pavement Rehabilitation" seminars for the National Highway Institute and the American Society of Civil Engineers, James has also taught graduate pavement engineering courses at San Jose State University, where many of his former students now serve as civil engineers for Bay Area agencies. He leverages his research, technical expertise, and teaching background to understand client needs and develop innovative pavement design and rehabilitation strategies. James actively contributes to the field as a member of the Transportation Research Board (TRB) and remains engaged with professional organizations focused on advancing pavement engineering practices.

Representative Projects

Pavement Management System Updates

Humboldt County Association of Governments (HCAOG), CA

Pavement Specialist and QC Manager. For HCAOG's previous countywide PMS implementation and updates—covering 1,195 paved centerline miles for the County, seven cities, and tribal agencies—James oversaw quality control for field condition surveys, PCI calculations, and M&R history updates. He provided technical guidance on the development of M&R strategies and decision trees, delivered training on StreetSaver®, supported funding scenario analyses, and assisted with the preparation of final reports and presentations.

Pavement Management Peer Review and PMS Implementation

County of Madera, CA

QA/QC Manager. The County began implementing a pavement management program over ten years ago, but it was not completed due to resource limitations. Much of the data collected was imported into GIS shapefiles without field verification. NCE conducted a peer review of the County's existing road system data (over 2,000 miles), including information from the 2006 implementation, and reviewed the current pavement management software. NCE provided a roadmap for establishing a fully functional program, summarizing pavement inventory and data collection recommendations in a

Education
PhD, Civil Engineering, University of Illinois, Urbana-Champaign, 1998
MS, Civil Engineering, University of Illinois, Urbana-Champaign, 1994

Registrations and Certifications
Professional Engineer – Civil, CA #62647

Affiliations
Member Transportation Research Board Committee AFD70, Pavement Rehabilitation
Member Transportation Research Board Committee AFD70-1, Pavement Interlayer Systems
Former Member Federal Aviation Administration Pavement Technical Working Group

Joined NCE
2014 plus 1999-2001

Total Years of Experience
27 years

report. NCE then completed a countywide PMS update in 2018—addressing pavement conditions, maintenance and rehabilitation strategies, GIS updates, budget analysis, and Board presentations—and was selected again to perform the County's PMS update in 2023.

Pavement Management System Updates and GIS Linkage

Mendocino Council of Governments (MCOG), CA

Pavement Specialist and QA/QC Manager. James served as Pavement Specialist and QA/QC Manager for MCOG's countywide PMS and GIS linkage updates, supporting over 789 miles of rural roads for the County and four cities. He led quality assurance for field data collection, PCI calculations, and maintenance history updates, ensuring data accuracy and consistency throughout the project. James provided technical expertise on maintenance and rehabilitation (M&R) strategies, guided the integration of PMS data with GIS systems, and conducted detailed budget analyses. He also delivered training for agency staff and assisted with presentations to local officials, helping secure successful funding measures and supporting long-term pavement management planning.

Countywide Pavement Management System Updates

Siskiyou County Local Transportation Commission (SCLTC), CA

Pavement Specialist and QA/QC Manager. James supported a network of 1,073 miles for the County and nine cities. He managed quality control for field condition surveys, PCI calculations, and database updates, ensuring the accuracy and reliability of all collected data. James provided in-depth technical review and recommendations for M&R strategies, developed and evaluated funding analyses, and contributed to the creation of multi-year work plans tailored to agency needs. He also offered technical guidance on the integration of PMS data with GIS systems, supported agency staff training, and prepared clear, comprehensive reports and presentations to help agencies effectively communicate funding needs and prioritize pavement preservation efforts.

10-Year Pavement Rehabilitation Plan

County of Lake, CA

Pavement Design. The County is developing a robust pavement preservation and rehabilitation plan together with construction documents for selected projects, which require engineering services, including planning studies, soil studies, pavement evaluation studies, topographic surveys, engineering design, and development of plans and specification; NCE is providing all necessary engineering services in connection with the development of a 10-Year Pavement Preservation and Rehabilitation Plan General Services Agreement together with the completion of plans and specifications for the construction of selected projects identified in that plan. The 10-Year Pavement Preservation and Rehabilitation Plan General Services Agreement is expected to generate a list of road projects to be completed over a ten-year timeframe, together with pavement rehabilitation strategies for the respective projects, to increase the County-wide Pavement Condition Index from the current value of 35 to 50.

Regional Pavement Management System Updates

Fresno County Council of Governments (Fresno COG), CA

Pavement Specialist and QA/QC Manager. James served as Pavement Specialist and QA/QC Manager for the Fresno COG Regional PMS update, supporting 16 jurisdictions and over 6,000 centerline miles. He led quality assurance for field data collection, PCI calculations, and database management, ensuring the accuracy and consistency of all project deliverables. James provided technical expertise in the development and review of M&R strategies, funding scenario analyses, and multi-year work plans. He also offered guidance on integrating PMS data with GIS systems, supported agency staff training, and contributed to presentations for technical committees and local officials, helping agencies prioritize SB1 funds and make informed pavement management decisions.

Timin Punnackal, PE

Project Engineer

Timin is a licensed Professional Civil Engineer with more than 16 years of experience specializing in asset and pavement management, civil and pavement design, and roadway rehabilitation programs. He has been involved in all phases of pavement management system (PMS) implementations, updates, and conversions, and has substantial experience acquiring and integrating diverse asset data for analysis and reporting. Timin is skilled in utilizing ArcGIS network analysis and Google API tools for geocoding and routing location data, and has a strong background in conducting FWD testing and analyzing asset data to support comprehensive reporting. He is proficient in pavement software platforms such as AASHTOWare PavementME Design, ArcGis. StreetSaver®, and PAVER™. In addition, Timin has experience working with the Long-Term Pavement Performance (LTPP) program, further enhancing his expertise in pavement evaluation and data analysis.

Education
MS, Civil Engineering, University of Nevada, Reno, 2010
BS, Civil Engineering, University of Nevada, Reno, 2008

Registrations and Certifications
Professional Engineer – Civil, NV #024624

Affiliations
Friend of TRB Committee AKP10
Friend of TRB Committee AKP40

Joined NCE
2009

Total Years of Experience
16 years

Representative Projects

Pavement Condition Survey and Asset Management Data Collection

County of Shasta, CA

Project Engineer (Lead). Timin led the pavement condition surveys and asset management data collection for the County, overseeing a comprehensive evaluation of the County's roadway network. He managed all aspects of field data collection, including planning, scheduling, and quality control to ensure accurate and reliable results. Timin analyzed pavement condition data, calculated PCI values, and developed detailed reports to support the County's pavement management and capital improvement planning. He also provided technical recommendations for M&R strategies, integrated asset data with GIS systems, and collaborated closely with County staff to address project goals and reporting requirements. His leadership and technical expertise contributed to the development of actionable, data-driven solutions for the County's long-term pavement preservation and asset management.

Pavement Management Program Update for P-TAP Round 25

Metropolitan Transportation Commission (MTC) and City of Cupertino, CA

Project Engineer. Timin managed pavement condition assessments and PCI updates for the City of Cupertino as part of the MTC P-TAP 25 program. He was responsible for planning and overseeing all field data collection activities, ensuring data quality and consistency, and coordinating with City staff to address project requirements. Timin analyzed pavement condition data, updated the City's PMS database in StreetSaver®, and developed multi-year maintenance and rehabilitation work plans. He also prepared detailed reports

and presented findings to City staff, supporting data-driven pavement management decisions and helping the City prioritize funding and maintenance strategies.

Pavement Management Program Update for P-TAP Round 25

Metropolitan Transportation Commission (MTC) and City of Redwood City, CA

Project Engineer. Timin managed pavement condition assessments and PCI updates for the City of Redwood City under the MTC P-TAP 25 program. His responsibilities included coordinating field surveys, analyzing pavement condition data, and updating the City's PMS database to provide actionable recommendations for pavement maintenance and rehabilitation. Timin also oversaw quality assurance and quality control of field data, prepared technical reports summarizing findings, and worked closely with City staff to develop prioritized maintenance and rehabilitation strategies based on available budgets and long-term pavement performance goals. His efforts ensured the City received a comprehensive, data-driven update to its pavement management system, supporting effective planning and resource allocation for roadway infrastructure improvements.

Pavement Management Program Updates

County of San Diego, CA

Project Engineer. Timin supported the County's PMP, which covers approximately 1,950 centerline miles of county roadways. His work has included assisting the County's transition from PAVER to StreetSaver software, field verification of pavement inventory, database conversion, and conducting pavement condition surveys in accordance with ASTM D6433. Timin has updated maintenance and repair histories, performed budget analyses, prepared GIS file updates reflecting annexations and redistricting, and contributed to annual Board of Supervisors reports. He has also provided technical training and support to County staff, helping the County evaluate the impact of different budget scenarios and decision trees on their pavement network goals.

Pavement Management Program Projects

County of Santa Barbara, CA

Project Engineer. Timin has contributed to pavement management projects for Santa Barbara County, which includes a street network of approximately 1,650 centerline miles (city and county combined). His responsibilities have included conducting pavement condition surveys, updating pavement management databases, and developing multi-year maintenance and rehabilitation plans. Timin's work has involved evaluating the street network using ASTM D6433 protocols, running multiple budget scenarios to assess impacts on future pavement condition, and aligning pavement management data with GIS systems for comprehensive reporting and planning.

Pavement Management Program Updates

County of Orange, CA

Project Engineer. Timin supported the County's PMP, which consists of approximately 674 centerline miles of roadways in the unincorporated areas and contracted cities. Since 2009, he has led the cleanup and optimization of the County's StreetSaver database, analyzed PMP data, and developed seven-year work plans to meet Orange County Transportation Authority (OCTA) requirements. His responsibilities include converting PAVER™ databases to StreetSaver, verifying road inventory, inspecting all roads using ASTM D6433 protocols, developing maintenance strategies, updating maintenance history, performing multiple budget scenarios, linking the database to GIS shapefiles, and preparing reports for OCTA certification. Timin has also supported the County's asset management by collecting inventory data on a wide range of right-of-way assets.

Sampat Kedarisetty, PhD, EIT

Project Engineer

Sampat is an experienced Project Engineer specializing in pavement design, rehabilitation, and management. He has a strong foundation in both academic research and practical application, with a master's dissertation focused on evaluating rubberized pavements through rigorous laboratory testing for rutting, cracking, and moisture damage. His PhD research involved analyzing real-world pavement distress data from California cities and counties, utilizing tools such as StreetSaver® and RoadMatrix to assess and improve treatment performance. Sampat is highly skilled in using Caltrans' Pavement Design program, CalME, where he developed comprehensive factorial designs to address a range of climate, traffic, and pavement conditions. He has also supported the development of pavement management strategies through life cycle cost analysis, enabling data-driven and cost-effective decision-making.

Representative Projects

Pavement Management System Updates

Humboldt County Association of Governments (HCAOG), CA

Project Engineer. Sampat provided technical support for previous countywide PMS updates, including pavement condition assessment, database management, development of cost-effective maintenance strategies, field surveys, PCI calculations, and staff training on StreetSaver®.

Regional Pavement Management System Updates

Fresno County Council of Governments (Fresno COG), CA

Project Engineer. Sampat provided engineering support for the implementation of a countywide PMS using StreetSaver® for the rural cities of Coalinga, Firebaugh, Fowler, Huron, Kingsburg, Mendota, Orange Cove, San Joaquin, and Selma, covering 328 centerline miles. Responsibilities included conducting pavement condition surveys, updating the PMS database, performing needs and budget analyses, and preparing reports to support local agencies in prioritizing maintenance and rehabilitation efforts.

Countywide Pavement Management System Updates

Siskiyou County Local Transportation Commission (SCLTC), CA

Project Engineer. Sampat participated in the countywide PMS updates for Siskiyou County, providing engineering support for field condition surveys, database updates, and PCI calculations across the County's rural road network. He assisted in developing M&R strategies tailored to local needs, performed needs and budget analyses, and prepared final reports to help agencies maximize available funding and meet state reporting requirements. He also supported agency staff with training on the StreetSaver® platform.

Education
PhD, Civil and Environmental Engineering, University of California, Davis, 2025
MTech, Transportation Engineering,
Indian Institute of Technology, Kharagpur, India, 2016
BTech, Civil Engineering, Bhilai Institute of Technology, Durg, India, 2014

Registrations and Certifications
Engineer-in-Training, CA 179078
MTC StreetSaver® Rater Certification

Affiliations
American Society of Civil Engineers

Joined NCE
2023

Total Years of Experience
8 years

Pavement Condition Survey

County of Kern, CA

Project Engineer. Sampat performed pavement management for the network, including updating decision trees in StreetSaver, analyzing different budget scenarios for varying climate zones, and creating and submitting the final report on the pavement management program update. NCE was selected to update the City's StreetSaver® Pavement Management System. The scope of work included Pavement Management System implementation, data collection, quality control activities, asset data collection, and budgetary analysis. The City is responsible for the ongoing pavement maintenance and rehabilitation of approximately 1,275 miles of city-maintained streets and related assets. Out of the 1,275 miles of streets, approximately 345.5 are major streets and 929.5 are residential/local streets. NCE has updated the City's Pavement Management System as well as a Geographic Information System shapefile for the City.

10-Year Pavement Rehabilitation Plan

County of Lake, CA

Project Engineer. Sampat supported the County's 10-Year Pavement Rehabilitation Plan by conducting field reviews of pavement conditions, identifying locations for pavement investigations through coring, and performing pavement design for a 20-year design life using the R-value method. He analyzed pavement condition data obtained from falling weight deflectometer and ground penetrating radar to develop final pavement designs. NCE is providing pavement and civil design for approximately 17 centerline miles of selected roads within the County's 2025 work plan, as well as additional roads scheduled for construction in 2024. The project includes roads impacted by the Valley Fire and areas with significant pavement distress, such as cracking, potholes, edge breakdown, and surface weathering. Road geometry will remain unchanged, and new striping will follow current Caltrans standards.

Pavement Management Technical Assistance Program (P-TAP) Rounds 254 and 25

Metropolitan Transportation Commission (MTC), CA

Project Engineer. Sampat supported MTC's P-TAP Rounds 24 and 25, assisting with the maintenance and update of pavement management system databases for 109 jurisdictions across the Bay Area. His responsibilities included performing pavement condition surveys, updating databases with collected data, calculating PCI, and conducting quality assurance/quality control. Sampat also updated maintenance and rehabilitation decision trees, analyzed collected data, and prepared budget needs, scenario analyses, and other reports to support agency decision-makers in managing local pavement assets and advocating for increased maintenance funding where needed.

2024/25-Year Pavement Preservation Program Update

City of Martinez, CA

Project Engineer. Sampat worked to update the five-year work plan for the City by identifying applicable pavement treatments, compiling cost information, and providing a network overview to include proposed treatments. NCE has worked with City staff to update its FY 2023/24 to FY 2027/28 Pavement Preservation Program in January 2023. The City Council approved by resolution a proposed five-year program and authorized the preparation of construction plans, specifications, estimates, and advertising for bids for the FY 2023/24 Pavement Preservation Project. The recommended repair strategies and treatments include crack seal, slurry seal/micro surfacing, rubberized cape seal, edge grind with asphalt overlay, and reconstruction. NCE is reviewing the existing paving budget, Measure D preservation program street lists, selected treatments, and updated construction costs, and developing the FY 2024/25 through FY 2028/29 work plan to update the City's five-year pavement preservation program. The City's pavement network is composed of about 122 centerline miles of publicly maintained streets.

Jolina Karam, PhD, EIT

Staff Engineer

Jolina is an effective and experienced Staff Engineer specializing in asphalt material characterization, rheology assessment, and pavement management systems. Her doctoral research at Arizona State University focused on innovative modifiers—including recycled fibers and crumb rubber—to enhance asphalt pavement performance and reduce environmental impacts. As part of her research team, she developed two new products (patents pending) that improve pavement thermal properties and offer sustainable solutions to rising urban temperatures. Jolina is highly proficient in pavement design, soil mechanics, pavement preservation, concrete pavement evaluation, and pavement distress identification. She has collaborated on road and pavement design projects with the City of Phoenix, Arizona DOT, the Global KAITEKI Group, Solid Earth Inc., and FORTA Corporation, and has teaching experience at Arizona State University. Her technical skills include MS Office, AASHTOWare Pavement-ME, and OpenRoads.

Since joining NCE after earning her PhD, Jolina has contributed significantly to pavement design and management projects, with tasks that include preparing program reports, developing rehabilitation and maintenance plans, and utilizing ArcGIS and StreetSaver® for road and pavement analysis.

Representative Projects

Regional Pavement Management System Updates

Fresno County Council of Governments (Fresno COG), CA

Staff Engineer. Jolina contributed as a technical team member on the Fresno Council of Governments (Fresno COG) PMS Update. This project involved updating the PMS for 16 member jurisdictions, covering over 6,400 miles of roadway. Jolina supported the establishment and verification of road network inventories in StreetSaver®, assisted with condition surveys, and helped update maintenance and rehabilitation histories. She was involved in calculating average Pavement Condition Index (PCI) values, developing maintenance and rehabilitation strategies, conducting funding analyses and scenario modeling, and preparing multi-year prioritized work plans. Jolina's responsibilities included supporting data collection, database updates, scenario modeling, and preparation of deliverables, ensuring data integrity and compliance with regional standards throughout the project.

Pavement Management Technical Assistance Program (P-TAP) Rounds 25

Metropolitan Transportation Commission (MTC), CA

Staff Engineer. NCE has been involved in many projects related to the development, implementation, and training of the StreetSaver® program. NCE

Education

PhD, Civil, Environmental and Sustainable Engineering, Arizona State University, Tempe, AZ, 2024
MS, Civil, Environmental and Sustainable Engineering, Arizona State University, Tempe, AZ, 2020
BE, Civil and Environmental Engineering, Notre Dame University, Beirut, Zouk Mosbeh, Lebanon, 2018

Registrations and Certifications

Engineer-In-Training (EIT) 77498, January 2023

Affiliations

ASHE Student Chapter Treasurer, Arizona State University, 2023 to 2024
International Road Federation (IRF), Fellow, January 2020
American Society of Civil Engineers
(ASCE) Student Chapter President, Notre Dame University, Beirut, August 2016 – August 2017
ASCE Student Member (Member ID:000011948233), 2014 – 2024

Joined NCE

2024

Total Years of Experience

8 years

implemented the StreetSaver® PMS in over 150 agencies since 1994. Under MTC's PTAP Round 25, Jolina supported the Cities of Redwood City and Cupertino in updating their Pavement Management System databases. She updated each City's StreetSaver database, including the GIS shapefiles, pavement sections, and Decision Tree. Jolina also ran budget scenarios and assisted in the development of the final PTAP deliverables.

On-Call Pavement Engineering Services

California Department of Transportation, Statewide, CA

Staff Engineer. NCE is providing consultation, research, professional and technical services required for Pavement Engineering Services, including professional engineering expertise in pavement rehabilitation, preservation, recycling and reclamation, pavement evaluations and/or evaluation of innovative materials and equipment to determine their suitability for highway pavement construction. NCE is also performing incidental work associated with construction materials sampling and control, independent assurance program standards, pavement testing, pavement analysis, and reports on an "as-needed" basis to support Caltrans, Division of Maintenance, Pavement Program, District 56. The Caltrans Contract Manager assigns specific work to NCE to assist the Caltrans workforce through the issuance of Task Orders describing in detail the services to be performed.

Roadway Analysis and Distress Surveys for County Roads

County of Orange, CA

Staff Engineer. The County of Orange and the City of Dana Point maintain an approximate total of 365.1 miles and 93.5 miles of roadways, respectively, including Master Plan of Arterial Highways (MPAH) and local public roads. The County and the City performs biennial updates of its PMP to assist policy makers in making decisions for toad maintenance as well as complying with the County of Orange Transportation Authority (OCTA)'s Measure M2 Program. NCE is performing StreetSaver® pavement distress surveys in accordance with ASTM D6433-11 on the roadway in the unincorporated portions of Orange County and the contracted City of Dana Point for a five-year period beginning in FY 2020-2021 through FY 2024-2025. The pavement distress surveys, and corresponding reports will be completed for the years 2021, 2023, and 2025. For years 2022 and 2024 a StreetSaver® update with completed resurfacing projects and report generations is all that is required.

Pavement Management Program and Pavement Survey

City of Beverly Hills, CA

Staff Engineer. Jolina contributed to the development of the Beverly Hills PMP utilizing the MTC StreetSaver® system. She supported the implementation of a new, industry-standard PMP for 106.9 miles of streets and 44.7 miles of alleys, with responsibilities including data collection, condition surveys, and integration with the City's GIS. Her efforts were instrumental in establishing a program for street maintenance, improvements, and budgeting.

Street Rehabilitation Program and PMS Update

City of San Marino, CA

Staff Engineer. NCE provided pavement evaluation and design services for various roadways. A pavement condition survey was conducted with distresses identified along with areas for potential base repairs. Coring, sampling, and laboratory testing were performed, and a pavement design and soil investigation memorandum were prepared. The memorandum included potential treatments with a focus on sustainable treatments and cost-saving measures including ARHM and CIR. The street rehabilitation programs included a cost-savings focused design to implement the plans, specifications, and cost estimates (PS&E) for the City's annual roadway maintenance and PMS implementation. NCE provided detailed field markings and inventory for localized base repairs and concrete curb and gutter repairs to provide improved bidding and construction cost outcomes.

Jacob ("Jake") Rajnowski

Senior Field Technician

Jake joined NCE as a Pavement Management Technician and has developed extensive expertise in collecting pavement distress data and coring samples for pavement management systems. He has performed pavement condition surveys on thousands of centerline miles across California for city and county clients. Jake routinely leads all aspects of data collection and quality control, including cross-checks of PMS database entries, field data, and maintenance histories to ensure data accuracy. He generates detailed reports to support data verification and database integrity. Jake is certified by the MTC for pavement distress inspections—covering both ASTM D6433 for PAVER™ and StreetSaver®-modified ASTM D6433 distress types—and maintains this certification through annual field testing. He has also completed OCTA's PAVER™ 'Distress Identification' course for asphalt concrete and Portland cement pavements. Jake has supported a variety of city, county, and regional transportation planning agency pavement management projects, including previous **HCAOG countywide PMS implementation and updates,** and continues to work on similar efforts throughout California.

Education
Sterling High School, Sterling, IL, 2003

Registrations and Certifications
MTC StreetSaver® Rater Certification Program
OCTA PAVER™ Certification

Joined NCE
2016

Total Years of Experience
9 years

Representative Projects

Pavement Management System Updates

Humboldt County Association of Governments (HCAOG), CA

Senior Field Technician. Jake has served as Senior Field Technician for HCAOG's countywide PMS updates, leading pavement condition surveys and collecting distress data across the county and its member cities. He was responsible for coordinating field teams, performing quality control checks on collected data, and ensuring the accuracy and completeness of PMS database updates. Jake's work has supported other aspects of the PMS, including the development of M&R strategies, and has helped local agencies make informed decisions for long-term pavement preservation.

Pavement Management Peer Review and Pavement Management System Implementation

Madera County, CA

Senior Field Technician. Jake was responsible for performing pavement condition surveys and quality control for Madera County's Pavement Management System (PMS) projects. He supported a peer review of the County's existing road network data—covering over 2,000 miles—including verification of GIS shapefiles and assessment of previous data collection efforts. Jake contributed to the 2018 countywide PMS update by collecting field data, supporting database updates, and assisting with the development

of maintenance and rehabilitation strategies, GIS updates, and budgetary analyses. He also participated in the 2023 PMS update, continuing to provide field data collection and quality assurance to support the County's efforts in maintaining an accurate and functional pavement management program.

Countywide Pavement Management Systems Implementation and Updates

Transportation Agency for Monterey County (TAMC), CA

Senior Field Technician. Jake conducted pavement condition surveys and distress data collection across 1,307 centerline miles for Monterey County and its participating cities. As part of the field surveys, he also collected data on non-pavement assets such as traffic signs using mobile data collection units capable of capturing high-resolution, 360-degree, geo-referenced digital images. This system enabled accurate inventory of traffic sign assets, including latitude and longitude, MUTCD code, and support type. Jake coordinated field teams, ensured data quality assurance, updated the PMS database, and provided foundational data for accurate Pavement Condition Index (PCI) calculations and the development of maintenance and rehabilitation strategies for agencies under Measure X and SB1 funding. The County can view the 360-degree images on Mapillary.com at no additional cost.

Engineering Services for Pavement Management System Update

City of Fresno, CA

Field Technician. Jake was responsible for performing pavement condition surveys and quality control for the project. NCE performed semi-automated condition surveys using the MTC's modified American Society for Testing and Materials D6433 survey procedures and a customized vehicle equipped with a computer, cameras, and a laser bar. This allowed condition data, including distress type, extent, and severity, to be collected quickly and safely. After inspection, all distress data were entered into the City's StreetSaver® database, and PCI calculations were performed. NCE then met with City staff and reviewed and updated the M&R strategies and treatments.

10-Year Pavement Rehabilitation Plan

County of Lake, CA

Senior Field Technician. Jake led pavement condition surveys and distress data collection for Lake County's PMS updates, covering both county-maintained roads and city streets. He coordinated and trained field teams, performed quality control on collected data, and ensured accurate and timely updates to the PMS database. Jake was responsible for verifying pavement inventory, documenting a wide range of pavement distresses, and generating detailed field reports to support data integrity. His work provided the County with reliable PCI data and asset information, directly supporting the development of M&R strategies, prioritization of funding, and the implementation of the County's 10-Year Pavement Rehabilitation Plan.

Regional Pavement Management System Updates

Fresno County Council of Governments (Fresno COG), CA

Senior Field Technician. Jake performed field inspections and collected pavement distress data for the regional PMS implementation across nine rural cities in Fresno County, covering over 300 centerline miles. He coordinated and trained field teams, verified pavement inventory, and documented a variety of pavement distresses using standardized data collection protocols. Jake ensured data accuracy through rigorous quality control procedures, including cross-checks of field data and database entries, and generated detailed field reports to support data integrity. He contributed to PMS database updates and provided reliable PCI data, supporting local agencies in prioritizing pavement M&R needs and optimizing funding allocation.

Jake has supported other countywide PMS projects, including Shasta, Trinity, Santa Cruz, and Sonoma Counties.

Kevin Foxcroft

Senior Field Technician

Kevin Foxcroft is a Pavement Management Technician with extensive experience in pavement data collection, entry, and quality control for PMS. He is certified at both the Federal and MPO levels to perform pavement condition surveys and is also certified by the MTC for pavement distress inspections. Kevin routinely collects and processes data using advanced technologies, including Falling Weight Deflectometer (FWD) and High Speed Profilometer equipment, to support pavement research, evaluation, and design. He is responsible for all aspects of field data collection, database updates, and quality control, which includes cross-checking PMS database entries, verifying field-collected data, and reviewing pavement maintenance histories to ensure data accuracy and integrity. Kevin's attention to detail and technical expertise help ensure that pavement management system databases remain accurate, comprehensive, and up to date for agency clients. He has supported a variety of city and countywide PMS projects throughout California, contributing to reliable data that informs maintenance and rehabilitation strategies.

Representative Projects

10-Year Pavement Rehabilitation Plan

County of Lake, CA

Senior Field Technician. NCE is providing pavement and civil design for the pavement rehabilitation of the select roads within the County's 2025 work plan plus others added by the County. Many of the neighborhoods in which these pavements reside have been heavily damaged by fire with some residents rebuilding their homes. The pavements in these neighborhoods exhibit significant load related cracking and potholes, patches, surface raveling and weathering and overall are in poor condition. Based on the County's StreetSaver® database, the Cobb Mountain and Pine Summit neighborhoods consists of 24 and 6 pavement sections with a weighted average pavement condition index (PCI) of 23 and 30 respectively. Other neighborhoods are in better condition and can potentially be maintained through seal treatments. NCE is assessing the roads and providing the County a range of pavement treatment and rehabilitation strategies.

Countywide Pavement Management Systems Implementation and Updates

Transportation Agency for Monterey County (TAMC), CA

Senior Field Technician. NCE collected data on traffic signs as non-pavement assets as part of the field surveys. The mobile data collection units utilized could also gather high-resolution, 360-degree, geo-referenced right-of-way digital images. This mobile mapping system provided the ability to inventory traffic signs assets with a high level of accuracy. NCE collected latitude and

Education
BS, Business Management, Western Governors University, 2020
AAS, Construction Technologies (Emphasis in Renewable Energy), Truckee Meadows Community College, 2013

Registrations and Certifications
HAZWOPER-40 Hour
OHSA 10-Hour Construction
Federal Highway Administration Manual Distress Surveys
MTC StreetSaver® Rater Certification Program

Joined NCE
2016

Total Years of Experience
9 years

longitude, Manual on Uniform Traffic Control Devices code, and support type for traffic signs. The County will view the 360-degree images on Mapillary.com at no additional cost.

Regional Pavement Program Update

Stanislaus Council of Governments (StanCOG), CA

Senior Field Technician. Kevin performed pavement surveys and distress data collection for the Stanislaus Council of Governments' regional pavement management program update. The program encompassed nine cities—Ceres, Hughson, Modesto, Newman, Oakdale, Patterson, Riverbank, Turlock, and Waterford—as well as Stanislaus County. His responsibilities included coordinating field teams, ensuring data quality, and updating the pavement management system database. Kevin's work provided reliable PCI data to support the development of maintenance and rehabilitation strategies, funding prioritization, and long-term pavement preservation planning for the region.

Pavement Management Technical Assistance Program (P-TAP) Rounds 25

Metropolitan Transportation Commission (MTC), CA

Senior Field Technician. Kevin supported MTC's P-TAP Rounds 24 and 25 by conducting pavement condition surveys, collecting distress data, and updating the StreetSaver® pavement management system database for participating Bay Area agencies. He ensured data quality through rigorous field checks and quality control procedures, and provided technical support to agency staff. Kevin's work contributed to the accurate calculation of Pavement Condition Index (PCI) values and supported agencies in developing maintenance and rehabilitation strategies, prioritizing funding, and planning long-term pavement preservation.

Regional Pavement Management System Updates

Fresno County Council of Governments (Fresno COG), CA

Senior Field Technician. Kevin conducted pavement condition surveys and distress data collection for the regional PMS update across nine rural cities in Fresno County, covering over 300 centerline miles. He coordinated with field teams, ensured data quality through rigorous quality control procedures, and updated the PMS database. Kevin's work provided reliable Pavement Condition Index (PCI) data to support local agencies in prioritizing pavement maintenance and rehabilitation strategies and optimizing funding allocation.

2025 Cape Seal Project

City of Richmond, CA

Senior Field Technician. NCE is providing specifications and engineer's estimate (S&E) for the 2025 Cape Seal Project. The goal of this project is to build on the 2024 Slurry Seal Project that is nearing completion for construction and keep the momentum on street preservation for the City. To achieve this goal a rubberized cape seal (RCS) treatment with base repairs was selected to allow for treatment of the next lower condition category of streets. This project overall will include application of RCS to approximately 11 centerline miles of residential and collector streets selected throughout the City as identified by the City's StreetSaver(R) pavement management program. RCS street candidates will largely be adjacent or nearby streets that previously received slurry seals in an effort to have continuity between the two projects. Based on the City's pavement management program decision tree, an RCS treatment will be applied to the next lower Condition Category III with a pavement condition index between 50 and 70 (load related distresses). NCE also assisted the City with completing a CalRecycle Rubberized Pavement Grant application that requires application of a rubberized chip seal to at least ninety percent (90%) of the attached street list treatment area, or approximately 182,000 square yards.

Paul Muse

Senior Field Technician

Paul is an MTC-certified inspector with over 13 years of experience in pavement condition surveys, GIS-based segmentation, and infrastructure asset management. He is highly proficient in StreetSaver® Online Version 9.0 and specializes in GIS segmentation and linkage using ArcGIS software. Paul has provided pavement condition surveys and GIS support for approximately 6,000 centerline miles of roadway, serving over 50 public agencies throughout California. Paul's expertise includes infrastructure asset management inspections and analysis, as well as the application of GIS and AI technologies. He has supervised asset management technicians, supported project managers with schedule forecasting, and participated in client meetings to address specific needs. Paul is a skilled communicator, recognized for his reliability and consistent delivery of high-quality results. He has conducted pavement condition surveys, developed scenarios aligned with MTC requirements, and prepared comprehensive PMS reports. Paul has trained clients and new hires on StreetSaver® software and pavement inspections, developed custom applications for field data collection, and led pilot studies on AI technologies. His work focuses on ensuring accurate PCI scores and creating visualizations for pavement conditions and planning needs. In addition to pavement inspections, Paul has experience marking dig-outs for pavement rehabilitation projects, conducting construction inspections, and reviewing encroachment permits for local agencies across the state.

Education
MA, Geography (Option in Environmental Policy & Planning), California State University, Chico, 2013
BA, Geography (GIS Emphasis), University of California, Santa Bargara, 2008

Registrations and Certifications
MTC StreetSaver® Pavement Inspector Certification 1168
OSHA 10 Certified

Joined NCE
2025

Total Years of Experience
13 years

Representative Projects

Pavement Management Technical Assistance Program (P-TAP) Rounds 25

Metropolitan Transportation Commission (MTC), CA

Asset Management Analyst. Paul is currently providing inspection data and GIS segmentation services, supporting more than eight public agencies. His responsibilities include pavement condition surveys in accordance with MTC's Distress Identification Manual, PCI calculations, maintenance and rehabilitation treatment entries, decision tree support, budget scenario analysis, and training in StreetSaver® and field inspection protocols.

Countywide Pavement Management Systems Implementation and Updates

Transportation Agency for Monterey County (TAMC), CA

Senior Field Technician. Paul served as a key team member for the countywide Pavement Management System (PMS) implementation and update for Monterey County and its participating cities, including Carmel-by-the-Sea, Del Rey Oaks, Greenfield, King City, Marina, Pacific Grove, and Sand City. The project covered a total of 1,307 centerline miles. Paul's

responsibilities included conducting pavement condition surveys in accordance with MTC's Distress Identification Manual, supporting GIS segmentation and database updates, and assisting with the development of M&R strategies. He contributed to the preparation of PMP reports, scenario analysis, and training agency staff on StreetSaver® software and field inspection protocols. Paul's work provided each agency with a robust management tool for inventory, condition assessment, maintenance history, and funding analysis under Measure X and SB1.

Regional Pavement Management System Updates

Fresno County Council of Governments (Fresno COG), CA

Senior Field Technician. Paul played a central role in the implementation and ongoing updates of the countywide PMS for Fresno COG, which represents 16 member jurisdictions. Since 2018, Paul has supported the establishment and verification of road network inventory, performed pavement condition surveys, updated maintenance and rehabilitation history, and calculated average PCI for each agency. He contributed to the development of M&R strategies, funding analysis with multiple scenarios, and multi-year prioritized work plans. Paul also assisted with regional analysis, final report preparation, and presentations to the Fresno COG Technical Advisory Committee and City Councils. His work has helped local agencies prioritize maintenance needs, optimize funding allocation, and communicate pavement conditions and funding requirements to stakeholders.

Countywide Road Maintenance Project Development and Construction Support

County of Placer, CA

Asset Management Analyst. NCE is providing engineering services to the County for its upcoming paving projects to support the development of pavement treatment options for roadway sections planned for rehabilitation, as well as to provide support to the County during the design process for the roadways, as well as construction support. The County is planning on rehabilitating five pavements. Three of these pavements are in the western side of the County and include Douglas Boulevard and Auburn Folsom Road Intersection (Granite Bay), Old Auburn Road (Sierra College Boulevard to Old County Road, and Plaza Way south of the mall to Willow Creek Drive (north) (North Auburn). Two of the pavement sections are on the eastern slope and include North National Avenue and Brockway Court (Tahoe Vista) and Chamberland Drive, Ellis Road, Flicker Avenue, and Lodge Drive (Lake Tahoe West Shore).

Pavement Management Program (PMP) Update

County of Sonoma, CA

Senior Field Technician. This four-year contract supported annual updates to the County's entire 1,380 centerline mile pavement network. The scope included conducting pavement inspections, calculating PCI-based condition assessments, analyzing performance under varying budget scenarios, and developing a final summary report with recommendations. Paul created field inspection maps, conducted pavement surveys, and coordinated with a subconsultant team during both manual and automated data collection efforts to ensure consistent inspections across crews. He also assisted with integrating and linking the County's centerline shapefile with the StreetSaver® database to enhance data usability and reporting.

Pavement Management Program

City and County of San Francisco, CA

Senior Field Technician. Paul has supported San Francisco's PM) updates for multiple years, conducting detailed field distress surveys and condition assessments across various districts. In 2024, he surveyed about 3,472 pavement segments—about 598 lane miles (252 centerline miles)—in Districts 1, 2, 5, and 6, including PCI calculations and electronic data formatting. His work has enabled the City to make data-driven decisions for pavement M&R, and he has also contributed to inventorying bicycle and bus lanes in key areas.

märker geospatial

Ken Huisman

Field Supervisor

Ken Huisman has over 35 years of experience in pavement management consulting, serving government agencies across North America. He has overseen the development of large-scale pavement and GIS databases for municipal, state, and federal projects. Ken's expertise includes delivering PMS services and working with a wide range of industry-standard PMS software. He is frequently sought after by agencies for his effective solutions throughout the entire lifecycle of public asset management.

Ken holds a degree from the School of Engineering at Georgian College in Canada. He spent more than 17 years at Stantec Consulting, advancing to Senior Associate, before founding Mission Geographic in 2007—now märker geospatial. The firm is dedicated to equipping public works professionals with innovative asset management tools. Ken's extensive experience with operations management software, data collection, and GIS mapping—including asset inventories, condition assessments, field mapping, and 3D reality capture using LiDAR—makes him a valuable resource to his clients.

Representative Projects

Ken has worked with the NCE team on asset and pavement management projects for many cities, counties, and regional transportation planning agencies in California. The following are some of the Northern California agencies he has supported with similar countywide PMS programs in bold:

- Bakersfield
- Calaveras County
- Clearlake
- Citrus Heights
- Contra Costa County
- Davis
- Elk Grove
- **Fresno County and Cities (Fresno) COG**
- **Glenn County and Cities (GCTC)**
- **Humboldt County and Cities (HCAOG)**
- Kern County
- Kings County
- **Lake County and Cities (Lake APC)**
- Lakeport
- Madera City and County
- Martinez
- **Mendocino County and Cities (MCOG)**
- Merced County
- **Monterey County and Cities (TAMC)**
- Rancho Cordova
- Rocklin
- Sacramento City and County
- San Francisco City and County
- Santa Cruz City and County
- Shasta County
- **Siskiyou County and Cities (SCLTC)**
- **Stanislaus County and Cities (StanCOG)**
- Trinity County
- West Sacramento
- **MTC**

Education
Environmental Engineering Degree, School of Engineering, Georgian College, Ontario, Canada, 1997

Registration/Certifications
MTC StreetSaver® Rater Certification Program
OCTA Prequalified for Automated Data Collection

Joined märker
2007

Total Years of Experience
35 years

märker geospatial

John Zimmer

Field Inspector

John has more than 34 years of transportation engineering experience and is a key member of märker's geospatial's field team, known for delivering timely, accurate, and reliable data. He is certified by MTC through the StreetSaver® Pavement Inspection Rater Certification Program and has extensive hands-on expertise in pavement profiling, automated data collection, analysis, and infrastructure management. John has extensive on-site experience throughout the entire data collection timeline, applying his proficiency with advanced pavement scanning and spatial remote sensing technologies, including 6D LiDAR and AI-powered distress detection. He has managed large-scale pavement condition survey projects for numerous agencies, such as Sacramento County, Kern County, San Diego County, Glenn County, Madera County, and the City of Fresno, ensuring high-quality data delivery for pavement management programs.

Mr. Zimmer holds a master's in engineering from the University of Nevada, Las Vegas, and a BS in Environmental Engineering from Cal Poly San Luis Obispo. His academic background and professional career have provided him with deep expertise in field data collection, GIS mapping, data processing, and quality control for transportation infrastructure projects.

Representative Projects

John has worked with the NCE team on asset and pavement management projects for many cities, counties, and regional transportation planning agencies in California. The following are some of the agencies he has supported with similar countywide PMS programs in bold:

- Bakersfield
- Calaveras County
- Clearlake
- Davis
- **Fresno County and Cities (Fresno) COG**
- **Glenn County and Cities (GCTC)**
- **Humboldt County and Cities (HCAOG)**
- Kern County
- **Lake County and Cities (Lake APC)**
- Lakeport
- Madera City and County
- **Mendocino County and Cities (MCOG)**
- **Monterey County and Cities (TAMC)**
- Napa
- Orange County
- Sacramento City and County
- San Diego County
- San Francisco City and County
- Santa Cruz City and County
- Shasta County
- **Siskiyou County and Cities (SCLTC)**
- Sonoma County
- **Stanislaus County and Cities (StanCOG)**
- West Sacramento
- MTC
- California DOT

Education
MS, Engineering, University of Nevada, Las Vegas, 2006

Registration/Certifications
MTC StreetSaver® Rater Certification Program
Certified, Operation/ Maintenance of Automated Pavement Profiler, ICC ~
ESRI GIS Software Certification, On-line course
Certified, Principles of Radiation Protection Petroleum and Minerals
Certified, Coring & Perforation Field Engineer 1 Halliburton Energy Services

Joined märker
2016

Total Years of Experience
34 years

8. Conflict of Interest

NCE has reviewed the conflict of interest requirements outlined in the RFP and affirms that, to the best of our knowledge, we have no actual, apparent, or potential conflicts of interest related to, or that may exist relative to, the services to be provided. NCE is committed to avoiding conflicts of interest, or the appearance thereof, throughout the duration of the contract.

9. Other Requirements

Statements

NCE has reviewed HCAOG's **insurance requirements** and is fully prepared to meet them, as we have successfully done in the past. We will provide evidence of all required coverage—including general liability, automobile, and errors and omissions insurance—and will name HCAOG as an additional insured prior to contract execution.

NCE will fully comply with all Disadvantaged Business Enterprise (DBE) requirements as defined in 49 CFR Part 23, ensuring that DBEs have the maximum opportunity to participate in the performance of contracts and subcontracts financed in whole or in part with Federal funds. NCE will take all necessary and reasonable steps to provide these opportunities and will not discriminate on the basis of race, color, national origin, or sex in the award and performance of USDOT-assisted contracts. NCE will fully comply with all requirements of Title VI of the Civil Rights Act of 1964 (49 USC 2000d), the regulations of the U.S. Department of Transportation (49 CFR Part 21), Equal Employment Opportunity laws, and Americans with Disabilities Act (ADA) provisions, ensuring nondiscrimination, equal opportunity, and accessibility in all programs, activities, services, and employment practices.

Equal Employment Opportunity

NCE is an Equal Opportunity Employer committed to a diverse and inclusive workplace. We do not discriminate based on race, color, national origin, sex, age, disability, or any other protected status Our hiring practices ensure equal access and fair treatment for all, strengthening our team and solutions.

Affirmative Action Plan. NCE is committed to a diverse and inclusive workforce through our Affirmative Action Plan and Equal Employment Opportunity policies, ensuring equal opportunity and compliance with all applicable laws. We recruit, hire, and make employment decisions based solely on qualifications and ability, without regard to any protected status, and provide reasonable accommodations as needed. A copy of NCE's Affirmative Action Policy is provided at the end of Section 9 – Other Requirements, as required by the RFP.

Disadvantaged Business Enterprise (DBE) Participation. NCE will deliver the HCAOG PMS Update using our in-house technical expertise and staff, as in previous successful projects. For continuity and enhanced quality, we have again partnered with märker geospatial for an optional task; while not a DBE, märker geospatial contributed to the 2021/22 HCAOG PMS update and brings direct familiarity with HCAOG's network. Per Caltrans guidance, DBE goal setting for state-originating funds is currently paused and no specific DBE goal applies to this RFP. However, NCE will fulfill all DBE outreach and compliance requirements, ensuring DBEs have maximum opportunity to participate. We are committed to inclusive participation and have a strong record of partnering with certified DBE subconsultants on federally funded projects. When DBE goals are set, we integrate DBE firms into our staffing plan or demonstrate Good Faith Efforts if certified vendors are unavailable. NCE will continue to maximize DBE participation and fully comply with all outreach and nondiscrimination requirements.

Consultant Services Agreement

NCE accepts HCAOG's Sample Consultant Services Agreement (Attachment A) and the RFP terms and conditions. The only modifications made are to update the contract dates on pages 1 and 7 to reflect the current year, 2026.

EQUAL EMPLOYMENT OPPORTUNITY POLICY

41 CFR Section 60-300.44(a)

It is the policy at Nichols Consulting Engineers to provide equal employment and advancement opportunities to all qualified individuals. To achieve this goal, Nichols Consulting Engineers is dedicated to taking affirmative action to employ and advance in employment of protected veterans. All personnel actions, including compensation, benefits, recruitment, hiring, training, and promotion of persons in all job titles, are administered without regard to protected veteran status, and all employment decisions are based solely on valid job requirements. In addition, employees and applicants are protected from harassment, threats, coercion, intimidation, or discrimination for:

1. Filing a complaint;

2. Assisting or participating in an investigation, compliance review, hearing, or any other activity related to the administration of Section 4212, Section 503, or any other Federal, State, or local law requiring equal opportunity for protected veterans;

3. Opposing any act or practice made unlawful by Section 4212, Section 503, or any other Federal, State or local law requiring equal opportunity for protected veterans; or

4. Exercising any other right protected by Section 4212, Section 503.

This EEO policy has the full support of top management, who has assigned responsibility for its implementation to Starlene Regalado, EEO Coordinator. Nichols Consulting Engineers has designed and implemented an audit and reporting system to monitor and maintain its compliance with the Acts.

A copy of the Equal Employment Opportunity statement that reaffirms Nichols Consulting Engineers's commitment to protected veterans is posted in a form that is accessible and understandable to an individual with a disability.

Collaboration. Commitment. Confidence.

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