

**PROFESSIONAL SERVICES AGREEMENT
BY AND BETWEEN
COUNTY OF HUMBOLDT
AND
KIMLEY HORN AND ASSOCIATES, INC.
PROJECT NAME: AIRPORT PAVEMENT MANAGEMENT SYSTEM**

This Agreement, entered into this 12th day of April 2022, by and between the County of Humboldt, a political subdivision of the State of California, hereinafter referred to as COUNTY, and Kimley-Horn and Associates, Inc., a North Carolina corporation, hereinafter referred to as CONSULTANT, is made upon the following considerations:

WHEREAS, COUNTY, by and through its Department of Aviation a Six-Airport System including the: California Redwood Coast-Humboldt County Airport (ACV) in McKinleyville, CA; Murray Field Airport (EKA) in Eureka, CA; Rohnerville Airport (FOT) outside of Fortuna, CA; Garberville Airport (O16) outside of Garberville, CA; Kneeland Airport (O19); and Dinsmore Airport (D63); and

WHEREAS, Public Law 103-305 requires that airports requesting federal AIP funding for pavement rehabilitation or reconstruction have an effective Pavement Maintenance Management System (PMMS); and

WHEREAS, the last APMS was completed for ACV, EKA, FOT, and O16 Airports were completed more than 5 years ago therefore they are now out of date by FAA Standards; and

WHEREAS, COUNTY, by and through its Department of Aviation, desires to retain the services of CONSULTANT to evaluate all airport pavements including: runways, taxiways, taxiplanes, and parking aprons and implement a Countywide Airport Pavement Management System ("APMS"); and

WHEREAS, the O19 and D63 Airports are not currently eligible for AIP funding, the Countywide APMS will only include the ACV, EKA, FOT, and O16 Airports; and

WHEREAS, such work involves the performance of professional, expert, and technical services of a temporary and occasional character, and COUNTY has no employees available to perform such services and is unable to hire employees for the performance thereof for the temporary period; and

WHEREAS, pursuant to California Government Code Section 31000, COUNTY may retain independent contractors to perform special services for COUNTY or any department thereof; and

WHEREAS, CONSULTANT represents that it is adequately trained, skilled, experienced, and qualified to perform evaluations, planning analysis, recommendations and associated consulting services required by COUNTY.

NOW THEREFORE, the parties hereto mutually agree as follows:

1. DESCRIPTION OF SERVICES:

CONSULTANT agrees to provide the services described in Exhibit A-Scope of Services, which is attached hereto and incorporated herein by reference as if set forth in full. In providing such services, CONSULTANT agrees to fully cooperate with the Director of Aviation, or a designee thereof, hereinafter referred to as "Director".

2. TERM:

This Agreement shall begin upon execution by both parties and shall remain in full force and effect until December 31, 2023, unless sooner terminated as provided herein.

3. TERMINATION:

- A. Termination for Cause. COUNTY may, in its sole discretion, immediately terminate this Agreement, if CONSULTANT fails to adequately perform the services required hereunder, fails to comply with the terms or conditions set forth herein, or violates any local, state or federal law, regulation or standard applicable to its performance hereunder.
- B. Termination Without Cause. COUNTY may terminate this Agreement without cause upon thirty (30) days advance written notice which states the effective date of the termination.
- C. Termination due to Insufficient Funding. COUNTY's obligations under this Agreement are contingent upon the availability of local, state and/or federal funds. In the event such funding is reduced or eliminated, COUNTY shall, at its sole discretion, determine whether this Agreement shall be terminated. COUNTY shall provide CONSULTANT seven (7) days advance written notice of its intent to terminate this Agreement due to insufficient funding.
- D. Compensation Upon Termination. In the event this Agreement is terminated, CONSULTANT shall be entitled to compensation for uncompensated services rendered hereunder through and including the effective date of such termination. However, this provision shall not limit or reduce any damages owed to COUNTY due to a breach of this Agreement by CONSULTANT.

4. COMPENSATION:

- A. Maximum Amount Payable. The maximum amount payable by COUNTY for services rendered, and costs and expenses incurred, pursuant to the terms and conditions of this Agreement is Two Hundred Forty-Three Thousand, Eight Hundred Thirty-Three Dollars (\$243,833.00). In no event shall the maximum amount paid under this Agreement exceed \$243,833.00. CONSULTANT agrees to perform all services required by this Agreement for an amount not to exceed such maximum dollar amount. However, if local, state or federal funding or allowance rates are reduced or eliminated, COUNTY may, by amendment, reduce the maximum amount payable hereunder or terminate this Agreement as provided herein.
- B. Schedule of Rates. The cost applicable to this Agreement is set forth in Exhibit A – Scope of Work, including elements of the project and descriptions, which is attached hereto and incorporated herein by reference as if set forth in full.
- C. Additional Services. Any additional services not otherwise provided for herein shall not be provided by CONSULTANT, or compensated by COUNTY, without COUNTY's prior written authorization. Any and all unauthorized costs and expenses incurred above the maximum payable amount set forth herein shall be the responsibility of CONSULTANT. CONSULTANT shall notify COUNTY, in writing, at least six (6) weeks prior to the date upon which CONSULTANT estimates that the maximum payable amount will be reached.

5. PAYMENT:

- A. CONSULTANT shall submit to COUNTY monthly invoices identifying services rendered, and costs and expenses incurred, pursuant to the terms and conditions of this Agreement by the tenth (10th) day of each month.
- B. Invoices may be shown as a percentage complete of each element listed in the Scope.
- C. CONSULTANT shall submit a final invoice for payment within thirty (30) days following the expiration or termination date of this Agreement. Invoices shall be in a format approved by the COUNTY and shall include a date range that the service was provided, total cost for the month, and percentage of each element complete.
- D. Payment for services rendered, and costs and expenses incurred, pursuant to the terms and conditions of this Agreement shall be made within thirty (30) days after the receipt of approved invoices.
- E. Any and all invoices submitted pursuant to the terms and conditions of this Agreement shall be sent to COUNTY at the following address:

County of Humboldt-Department of Aviation
3561 Boeing Avenue
McKinleyville, CA 95519

6. NOTICES:

Any and all notices required to be given pursuant to the terms and conditions of this Agreement shall be in writing and either served personally or sent by certified mail, return receipt requested, to the respective addresses set forth below. Notice shall be effective upon actual receipt or refusal as shown on the receipt obtained pursuant to the foregoing

COUNTY Humboldt County-Department of Aviation
Attention: Cody Roggatz, Director of Aviation
3561 Boeing Avenue
McKinleyville, CA 95519

CONSULTANT Kimley-Horn Associates, Inc.
Attention: Robert Hamilton
10 Almaden Boulevard, Suite 1250
San Jose, CA 95113

7. REPORTS:

CONSULTANT agrees to provide COUNTY with any and all reports that may be required by any local, state and or federal agencies for compliance with this Agreement CONSULTANT shall submit one (1) hard copy and one (1) electronic copy of any and all reports required hereunder in a format that complies with the Americans with Disabilities Act and any other applicable local, state, and federal accessibility laws, regulations and standards Any and all reports required hereunder shall be submitted in accordance with any and all applicable timeframes using the format required by the State of California as appropriate.

8. RECORD RETENTION AND INSPECTION:

- A. Maintenance and Preservation of Records. CONSULTANT agrees to timely prepare accurate and complete financial, performance and payroll records, documents and other evidence relating to the services provided pursuant to the terms and conditions of this Agreement, and to maintain and preserve said records for at least three (3) years from the date of final payment hereunder, except that if any litigation, claim, negotiation, audit or other action is pending, the records shall be retained until completion and resolution of all issues arising therefrom. Such records shall be original entry books with a general ledger itemizing all debits and credits for the services provided pursuant to the terms and conditions of this Agreement.
- B. Inspection of Records. Pursuant to California Government Code Section 8546.7, all records, documents, conditions and activities of CONSULTANT, and its subcontractors, related to the services provided pursuant to the terms and conditions of this Agreement, shall be subject to the examination and audit of the California State Auditor and any other duly authorized agents of the State of California for a period of three (3) years after the date of final payment hereunder CONSULTANT hereby agrees to make all such records available during normal business hours to inspection, audit and reproduction by COUNTY and any other duly authorized local, state and or federal agencies. CONSULTANT further agrees to allow interviews of any of its employees who might reasonably have information related to such records by COUNTY and any other duly authorized local, state and/or federal agencies. All examinations and audits conducted hereunder shall be strictly confined to those matters connected with the performance of this Agreement, including, without limitation, the costs of administering this Agreement.
- C. Audit Costs. In the event of an audit exception or exceptions related to the services provided pursuant to the terms and conditions of this Agreement, the party responsible for not meeting the requirements set forth herein shall be responsible for the deficiency and for the cost of the audit. If the allowable expenditures cannot be determined because CONSULTANT's documentation is nonexistent or inadequate, according to generally accepted accounting practices, the questionable cost shall be disallowed by COUNTY.

9. MONITORING:

CONSULTANT agrees that COUNTY has the right to monitor all activities related to this Agreement, including, without limitation, the right to review and monitor CONSULTANT's records, programs, procedures and overall business operations, at any time, in order to ensure compliance with the terms and conditions of this Agreement. CONSULTANT will cooperate with a corrective action plan, if deficiencies in CONSULTANT's records, programs, procedures, or business operations are identified by COUNTY. However, COUNTY is not responsible, and will not be held accountable, for overseeing or evaluating the adequacy of CONSULTANT's performance hereunder.

10. CONFIDENTIAL INFORMATION:

- A. Disclosure of Confidential Information. In the performance of this Agreement, CONSULTANT may receive information that is confidential under local, state or federal law. CONSULTANT hereby agrees to protect all confidential information in conformance with any and all applicable local, state and federal laws, regulations, policies, procedures and standards.
- B. Continuing Compliance with Confidentiality Requirements. The parties acknowledge that local, state and federal laws, regulations and standards pertaining to confidentiality, electronic data security and privacy are rapidly evolving and that amendment of this Agreement may be required to ensure compliance with such developments. Each party agrees to promptly enter into negotiations concerning an amendment to this Agreement embodying written assurances consistent with the requirements of any applicable local, state and federal laws, regulations or standards.

11. NON-DISCRIMINATION COMPLIANCE:

- A. Professional Services and Employment. In connection with the execution of this Agreement, CONSULTANT, and its subcontractors, shall not unlawfully discriminate in the provision of professional services or against any employee or applicant for employment because of race; religion or religious creed; color; age, over forty (40) years of age; sex, including, without limitation, gender identity and expression, pregnancy, childbirth and related medical conditions; sexual orientation, including, without limitation, heterosexuality, homosexuality and bisexuality; national origin; ancestry; marital status; medical condition, including, without limitation, cancer and genetic characteristics; mental or physical disability, including, without limitation, HIV status and AIDS; political affiliation; military service; denial of family care leave; or any other classifications protected by local, state, or federal laws or regulations. Nothing herein shall be construed to require the employment of unqualified persons.
- B. Compliance with Anti-Discrimination Laws. CONSULTANT further assures that it, and its subcontractors, will abide by the applicable provisions of Title VI and Title VII of the Civil Rights Act of 1964; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975; the Food Stamp Act of 1977; Title II of the Americans with Disabilities Act of 1990; the California Fair Employment and Housing Act; California Civil Code Sections 51, *et seq*; California Government Code Sections 4450, *et seq*; California Welfare and Institutions Code Section 10000; Division 21 of the California Department of Social Services Manual of Policies and Procedures; United States Executive Order 11246, as amended and supplemented by United States Executive Order 11375 and 41 C.F.R. Part 60; and any other applicable local state or federal laws, regulations, or standards, all as may be amended from time to time. The applicable regulations of the California Fair Employment and Housing Commission implementing California Government Code Section 12990, set forth in Sections 8101, *et seq* of Title 2, of the California Code of Regulations are incorporated into this Agreement by reference and made a

part hereof as if set forth in full.

12. NUCLEAR-FREE HUMBOLDT COUNTY ORDINANCE COMPLIANCE:

By executing this Agreement, CONSULTANT certifies that it is not a Nuclear Weapons Contractor, in that CONSULTANT is not knowingly or intentionally engaged in the research, development, production or testing of nuclear warheads, nuclear weapons systems or nuclear weapons components as defined by the Nuclear-Free Humboldt County Ordinance. CONSULTANT agrees to notify COUNTY immediately if it becomes a Nuclear Weapons Contractor as defined above. COUNTY may immediately terminate this Agreement if it determines that the foregoing certification is false or if CONSULTANT subsequently becomes a Nuclear Weapons Contractor.

13. DRUG-FREE WORKPLACE CERTIFICATION:

By executing this Agreement, CONSULTANT certifies that it will provide a drug-free workplace in accordance with the requirements of the Drug-Free Workplace Act of 1990 (California Government Code Sections 8350, *et seq.*), by doing all of the following:

- A. Drug-Free Policy Statement. Publish, as required by California Government Code Section 8355(a)(1), a Drug-Free Policy Statement which notifies employees that the unlawful manufacture, distribution, dispensation, possession or use of a controlled substance is prohibited, and specifies the actions to be taken against employees for violations.
- B. Drug-Free Awareness Program. Establish, as required by California Government Code Section 8355(a)(2), a Drug-Free Awareness Program which informs employees about:
 - 1. The dangers of drug abuse in the workplace;
 - 2. CONSULTANT's policy of maintaining a drug-free workplace;
 - 3. Any available counseling, rehabilitation and employee assistance programs; and
 - 4. Penalties that may be imposed upon employees for drug abuse violations.
- C. Drug Free Employment Agreement. Ensure, as required by California Government Code Section 8355(a)(3), that every employee who provides services pursuant to the terms and conditions of this Agreement will:
 - 1. Receive a copy of CONSULTANT's Drug Free Policy Statement; and
 - 2. Agree to abide by CONSULTANT's Drug Free Policy as a condition of employment.
- D. Effect of Non-Compliance. Failure to comply with the requirements set forth herein may result in termination of this Agreement and/or ineligibility for award of future contracts.

14. INDEMNIFICATION:

- A. Hold Harmless, Defense and Indemnification. CONTRACTOR shall hold harmless, defend and indemnify COUNTY and its agents, officers, officials, employees and volunteers from and against any and all claims, demands, losses, damages, liabilities, expenses and costs of any kind or nature, including, without limitation, attorney's fees and other costs of litigation, to the extent arising out of, or in connection with, CONTRACTOR's negligent performance of, or failure to comply with, any of the duties and/or obligations contained herein, except such loss or damage which was caused by the sole or active negligence or willful misconduct of COUNTY.
- B. Effect of Insurance. Acceptance of the insurance required by this Agreement shall not relieve CONTRACTOR from liability under this provision. This provision shall apply to all claims for damages related to CONTRACTOR's performance hereunder regardless of whether any insurance is applicable or not. The insurance policy limits set forth herein shall not act as a limitation upon the amount of indemnification or defense to be provided hereunder.

15. INSURANCE REQUIREMENTS:

This Agreement shall not be executed by COUNTY, and CONSULTANT is not entitled to any rights hereunder, unless certificates of insurance, or other proof that the following provisions have been complied with, are filed with the Clerk of the Humboldt County Board of Supervisors.

- A. General Insurance Requirements Without limiting CONSULTANT's indemnification obligations set forth herein, CONSULTANT, and its subcontractors, shall take out and maintain, throughout the term of this Agreement, and any extensions thereof, the following policies of insurance, placed with insurers authorized to do business in the State of California with a current A.M. Bests rating of no less than A: VII or its equivalent against personal injury, death and property damage which may arise from, or in connection with, the activities of CONSULTANT or its agents, officers, directors, employees, assignees or subcontractors:
 - 1. Comprehensive or Commercial General Liability Insurance at least as broad as Insurance Services Office Commercial General Liability Coverage (occurrence form CG 0001), in an amount of Two Million Dollars (\$2,000,000.00) per occurrence for any one (1) incident, including, without limitation, personal injury, death and property damage. If a general aggregate limit is used, such limit shall apply separately hereto or shall be twice the required occurrence limit.
 - 2. Automobile/Motor Liability Insurance with a limit of liability not less than One Million Dollars (\$1,000,000.00) combined single limit coverage. Such insurance shall include coverage of all owned, hired and non-owned vehicles, and be at least as broad as Insurance Service Offices Form Code 1 (any auto).
 - 3. Workers' Compensation Insurance, as required by the California Labor Code, with statutory limits, and Employers Liability Insurance with a limit of no less than One Million Dollars (\$1,000,000.00) per accident for bodily injury or disease. Said policy shall contain, or be endorsed to contain, a waiver of subrogation against COUNTY and its agents, officers, officials, employees and volunteers.

4. Professional Liability Insurance - Error and Omission Coverage including coverage in an amount no less than Two Million Dollars (\$2,000,000.00) for each occurrence (Four Million Dollars (\$4,000,000.00) general aggregate). Said insurance shall be maintained for the statutory period during which CONSULTANT may be exposed to liability. CONSULTANT shall require that such coverage be incorporated into its professional services agreements with any other entities.

B. Special Insurance Requirements. Said policies shall, unless otherwise specified herein, be endorsed with the following provisions:

1. The Comprehensive or Commercial General Liability Policy shall provide that COUNTY, and its agents, officers, officials, employees and volunteers, are covered as additional insured for liability arising out of the operations performed by, or on behalf of, CONSULTANT. The coverage shall contain no special limitations on the scope of protection afforded to COUNTY or its agents, officers, officials, employees and volunteers. Said policy shall also contain a provision stating that such coverage:
 - a. Includes contractual liability.
 - b. Does not contain exclusions as to property damage caused by explosion or collapse of structures or underground damage, commonly referred to as "XCU Hazards."
 - c. Is the primary insurance with regard to COUNTY.
 - d. Does not contain a pro-rata, excess only and or escape clause.
 - e. Contains a cross liability, severability of interest or separation of insureds clause.
2. The above-referenced policies shall not be canceled, non-renewed or materially reduced in coverage without thirty (30) days prior written notice being provided to COUNTY in accordance with the notice requirements set forth herein. It is further understood that CONSULTANT shall not terminate such coverage until COUNTY receives adequate proof that equal or better insurance has been secured.
3. The inclusion of more than one (1) insured shall not operate to impair the rights of one (1) insured against another insured, and the coverage afforded shall apply as though separate policies had been issued to each insured, but the inclusion of more than one (1) insured shall not operate to increase the limits of the insurer's liability.
4. For claims related to this Agreement, CONSULTANT's insurance is the primary coverage to COUNTY, and any insurance or self-insurance programs maintained thereby are excess to CONSULTANT's insurance and will not be used to contribute therewith.
5. Any failure to comply with the provisions of this Agreement shall not affect the coverage provided to COUNTY or its agents, officers, officials, employees and volunteers.

6. CONSULTANT shall furnish COUNTY with certificates and original endorsements effecting the required coverage prior to execution of this Agreement. The endorsements shall be on forms approved by the Humboldt County Risk Manager. Any deductible or self-insured retention over One Hundred Thousand Dollars (\$100,000.00) shall be disclosed to, and approved by, COUNTY. If CONSULTANT does not keep all required policies in full force and effect, COUNTY may, in addition to any other available remedies, take out the necessary insurance and deduct the cost of said insurance from the monies owed to CONSULTANT under this Agreement.
7. COUNTY is to be notified immediately if twenty five percent (25%) or more of any required insurance aggregate limit is encumbered, and CONSULTANT shall be required to purchase additional coverage to meet the above-referenced aggregate limits.

C Insurance Notices. Any and all insurance notices required to be given pursuant to the terms and conditions of this Agreement shall be sent to the addresses set forth below in accordance with the notice requirements contained herein.

COUNTY County of Humboldt
 Attention: Risk Management
 825 Fifth Street, Room 131
 Eureka, California 95501

CONSULTANT Kimley-Horn Associates, Inc.
 Attention: Robert Hamilton
 10 Almaden Boulevard, Suite 1250
 San Jose, CA 95113

16. RELATIONSHIP OF PARTIES:

It is understood that this Agreement is by and between two (2) independent entities and is not intended to, and shall not be construed to, create the relationship of agents, servant, employee, partnership, joint venture or any other similar association. Both parties further agree that CONSULTANT shall not be entitled to any benefits to which COUNTY employees are entitled, including, without limitation, overtime, retirement, leave or workers' compensation benefits.

17. COMPLIANCE WITH APPLICABLE LAWS, REGULATIONS AND STANDARDS:

- A. General Legal Requirements. CONSULTANT agrees to comply with any and all local, state and federal laws, regulations, policies, procedures and standards applicable to the services provided pursuant to the terms and conditions of this Agreement.
- B. Licensure Requirements. CONSULTANT agrees to comply with any and all local, state and federal licensure, certification and accreditation requirements and standards applicable to the services provided pursuant to the terms and conditions of this Agreement.

- C. Accessibility Requirements. CONSULTANT agrees to comply with any and all applicable accessibility requirements set forth in the Americans with Disabilities Act, Section 508 of the Rehabilitation Act of 1973, as amended, California Government Code Section 1135 and any current and future implementing regulations, policies, procedures and standards promulgated thereunder, including, without limitation, the federal accessibility standards set forth in 36 C.F.R. Section 1194.1, all as may be amended from time to time.
- D. Conflict of Interest Requirements. CONSULTANT agrees to comply with any and all applicable conflict of interest requirements set forth in the California Political Reform Act and any current and future implementing regulations, policies, procedures and standards promulgated thereunder, including, without limitation, COUNTY's Conflict of Interest Code, all as may be amended from time to time.

18. PROVISIONS REQUIRED BY LAW:

This Agreement is subject to any additional local, state and federal restrictions, limitations or conditions that may affect the terms, conditions or funding of this Agreement. This Agreement shall be read and enforced as though all legally required provisions are included herein, and if for any reason any such provision is not included, or is incorrectly stated, the parties agree to amend the pertinent section to make such insertion or correction.

19. REFERENCE TO LAWS, REGULATIONS AND STANDARDS:

In the event any law, regulation or standard referred to herein is amended during the term of this Agreement, the parties agree to comply with the amended provision as of the effective date thereof.

20. PROTOCOLS:

Both parties agree that the inclusion of additional protocols may be required to make this Agreement specific. All such protocols shall be negotiated, determined and agreed upon by both parties hereto.

21. SEVERABILITY:

If any provision of this Agreement, or any portion thereof, is found by any court of competent jurisdiction to be unenforceable or invalid for any reason, such provision shall be severable and shall not in any way impair the enforceability of any other provision of this Agreement.

22. ASSIGNMENT:

Neither party shall delegate its duties or assign its rights hereunder, either in whole or in part, without the other party's prior written consent. Any assignment by CONSULTANT in violation of this provision shall be void, and shall be cause for immediate termination of this Agreement. This provision shall not be applicable to service agreements or other arrangements usually or customarily entered into by either party to obtain supplies, technical support or professional services.

23. AGREEMENT SHALL BIND SUCCESSORS:

All provisions of this Agreement shall be fully binding upon, and inure to the benefit of, the parties and to each of their heirs, executors, administrators, successors and permitted assigns.

24. WAIVER OF DEFAULT:

The waiver by COUNTY of any breach of this Agreement shall not be deemed to be a waiver of any such breach in the future, or of the breach of any other requirement of this Agreement. In no event shall any payment by COUNTY constitute a waiver of any breach of this Agreement which may then exist on the part of CONSULTANT. Nor shall such payment impair or prejudice any remedy available to COUNTY with respect to the breach or default. COUNTY shall have the right to demand repayment of, and CONSULTANT shall promptly refund, any funds disbursed to CONSULTANT which COUNTY determines were not expended in accordance with the terms and conditions of this Agreement.

25. NON-LIABILITY OF COUNTY OFFICIALS AND EMPLOYEES:

No official or employee of COUNTY shall be personally liable for any default or liability under this Agreement.

26. AMENDMENT:

This Agreement may be amended only upon the mutual consent of both parties. No addition to, or alteration of, the terms of this Agreement shall be valid unless made in writing and signed by the parties hereto.

27. STANDARD OF PRACTICE:

CONSULTANT warrants that it has the degree of learning and skill ordinarily possessed by reputable professionals practicing in similar localities in the same profession and under similar circumstances. CONSULTANT's duty is to exercise such care, skill and diligence as professionals engaged in the same profession ordinarily exercised under like circumstances.

28. TITLE TO INFORMATION AND DOCUMENTS:

It is understood that any and all documents, information and reports concerning the subject matter of this Agreement prepared and or submitted by CONSULTANT shall become the property of COUNTY. However, CONSULTANT may retain copies of such documents, information and reports for its records. In the event this Agreement is terminated, for any reason whatsoever, CONSULTANT shall promptly turn over all such documents, information and reports to COUNTY without exception or reservation.

29. JURISDICTION AND VENUE:

This Agreement shall be construed in accordance with the laws of the State of California. Any dispute arising hereunder, or relating hereto, shall be litigated in the State of California and venue shall lie in the County of Humboldt unless transferred by court order pursuant to California Code of Civil Procedure Sections 394 or 395.

30. ADVERTISING AND MEDIA RELEASE:

Any and all informational material related to this Agreement shall receive approval from COUNTY prior to being used as advertising or released to the media, including, without limitation, television, radio, newspapers and internet. CONSULTANT shall inform COUNTY of all requests for interviews by the media related to this Agreement before such interviews take place; and COUNTY shall be entitled to have a representative present at such interviews. All notices required by this provision shall be given to Director in accordance with the notice requirements set forth herein.

31. SUBCONTRACTS:

CONSULTANT shall obtain prior written approval from COUNTY before subcontracting any of the services to be provided pursuant to the terms and conditions of this Agreement. Any and all subcontracts shall be subject to all applicable terms and conditions of this Agreement, including, without limitation, the licensing, certification, privacy, security and confidentiality requirements set forth herein. CONSULTANT shall remain legally responsible for the performance of all terms and conditions of this Agreement, including, without limitation, any and all services provided by third parties under subcontracts, whether approved by COUNTY or not.

32. ATTORNEYS FEES:

If either party shall commence any legal action, including, without limitation, an action for declaratory relief, against the other by reason of the alleged failure of the other to perform any of its obligations hereunder, the party prevailing in said action shall be entitled to recover court costs and reasonable attorneys' fees, including, but not limited to, the reasonable value of services rendered by the Humboldt County Counsel's Office, to be fixed by the court, and such recovery shall include court costs and attorneys' fees on appeal, if applicable. As used herein, the term "prevailing party" means the party who dismisses an action in exchange for payment of substantially all sums allegedly due, performance of provisions allegedly breached, or other considerations substantially equal to the relief sought by said party, as well as the party in whose favor final judgment is rendered.

33. SURVIVAL OF PROVISIONS:

The duties and obligations of the parties set forth in Section 3-Compensation Upon Termination, Section 8-Record Retention and Inspection, Section 10-Confidential Information, and Section 14-Indemnification shall survive the expiration or termination of this Agreement.

34. CONFLICTING TERMS OR CONDITIONS:

In the event of any conflict in the terms or conditions set forth in any other agreements in place between the parties hereto and the terms and conditions set forth in this Agreement, the terms and conditions set forth herein shall have priority.

35. INTERPRETATION:

This Agreement, as well as its individual provisions, shall be deemed to have been prepared equally by both of the parties hereto, and shall not be construed or interpreted more favorably for one (1) party on the basis that the other party prepared it.

36. INDEPENDENT CONSTRUCTION:

The titles of the sections and subsections set forth herein are inserted for convenience of reference only, and shall be disregarded in construing or interpreting any of the provisions of this Agreement.

37. FORCE MAJEURE:

Neither party hereto shall be liable or responsible for delays or failures in performance resulting from events beyond the reasonable control, and without the fault or negligence, of such party. Such events shall include, without limitation, acts of God, strikes, lockouts, riots, acts of war, epidemics, pandemics, acts of government, fire, power failures, nuclear accidents, earthquakes, unusually severe weather, acts of terrorism, pandemics, or other disasters, whether or not similar to the foregoing.

38. ENTIRE AGREEMENT:

This Agreement contains all of the terms and conditions agreed upon by the parties hereto and no other agreements, oral or otherwise, regarding the subject matter of this Agreement shall be deemed to exist or to bind either of the parties hereto. In addition, this Agreement shall supersede in their entirety any and all prior agreements, promises, representations, understandings and negotiations between the parties, whether oral or written, concerning the same subject matter. Any and all acts which may have already been consummated pursuant to the terms and conditions of this Agreement are hereby ratified.

39. COUNTERPART EXECUTION:

This Agreement, and any amendments hereto, may be executed in one (1) or more counterparts, each of which shall be deemed to be an original and all of which, when taken together, shall be deemed to be on (1) and the same agreement.

This Agreement, and any amendments hereto, may be signed by manual or electronic signatures in accordance with any and all applicable local, state and federal laws, regulations and standards, and such signatures shall constitute original signatures for all purposes.

A signed copy of this Agreement, and any amendments hereto, transmitted by email or by other means of electronic transmission shall be deemed to have the same legal effect as delivery of an original executed copy of this Agreement and any amendments hereto.

40. AUTHORITY TO EXECUTE:

Each person executing this Agreement represents and warrants that he or she is duly authorized and has legal authority to execute and deliver this Agreement. Each party represents and warrants to the other that the execution and delivery of this Agreement and the performance of such party's obligations hereunder have been duly authorized.

[Signatures on Following Page]

IN WITNESS WHEREOF, the parties have entered into this Agreement as of the first date written above.

TWO SIGNATURES ARE REQUIRED FOR CORPORATIONS

- (1) CHAIRPERSON OF THE BOARD, PRESIDENT, OR VICE PRESIDENT; AND
- (2) SECRETARY, CHIEF FINANCIAL OFFICER OR TREASURER

KIMLEY-HORN ASSOCIATES, INC.:


By: 
P.E. # C63346

Date: 04/06/2022

Name: PEARSE MELVIN

Title: VICE PRESIDENT

Date: 4/6/2022

By: 
PE C76981

Name: ROBERT J. HAMILTON, PE

Title: ASST. SECRETARY

COUNTY OF HUMBOLDT:

By: 

Date: 4/13/22

Virginia Bass
Chair, Humboldt County Board of Supervisors

INSURANCE AND INDEMNIFICATION REQUIREMENTS APPROVED:

By: Phillips, Amanda
Risk Management

Date: 04/08/2022

LIST OF EXHIBITS:

Attachment A – Scope of Work

ATTACHMENT A

Professional Consulting Services
for
Airport Pavement Management Services
Scope of Work



OCTOBER 2021 | VERSION 2.0

Prepared By:

Kimley»Horn

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I. PROJECT UNDERSTANDING

The Humboldt County (“the County” or “Client”) has requested a Scope of Work from Kimley-Horn and Associates, Inc. (“Consultant”) to perform select consulting services to implement a Countywide Airport Pavement Management System (“APMS”) for the following four (4) airports; six (6) airports; The California Redwood Coast – Humboldt County Airport, Garberville Airport, Murray Field Airport, and Rohnerville Airport. The intent of this Scope of Work (“Scope”) is to adhere to the requirements of the Federal Aviation Administration (“FAA”) Advisory Circulars (“AC”) and associated standards in **Table 1** Project Standards and Guidance.

The APMS Update will provide reasonable data, based on planning, maintenance recommendations, material evaluations, and conceptual rehabilitation considerations. The APMS Update will be performed to adhere to the requirements of the FAA maintaining an effective pavement maintenance management system. The APMS will consist of select investigations of Pavement Condition Index (PCI) Survey Data Collection and Analysis at airport pavement facilities identified in this Scope. Limited Nondestructive Testing using a “Falling Weight Deflectometer – FWD” and Structural Evaluation will be performed as part of this APMS Update. No Destructive Testing (Subsurface Geotechnical Investigation) will be performed as part of this APMS Update.

Table 1. Project Standards and Guidance

Document	Title	Current Version
150/5380-7	Airport Pavement Management Program (PMP)	150/5380-7B issued 10/10/2014
150/5320-6	Airport Pavement Design and Evaluation	150/5320-6F issued 11/10/2016
150/5370-11	Use of Nondestructive Testing in the Evaluation of Airport Pavements	150/5370-11B issued 09/30/2011
150/5335-5	Standardized Method of Reporting Airport Pavement Strength – PCN	150/5335-5C issued 08/14/2014
150/5300-13	Airport Design	150/5300-13A, Change 1 issued 09/28/2012
ASTM D5340	Standard Test Method for Airport Pavement Condition Index Surveys	D5340-20

PROGRAM BACKGROUND

AIRPORT FACILITIES

The County oversees one (1) commercial airport and five (5) general aviation airport facilities. It is located in the FAA Western-Pacific Region and coordinates with the FAA San Francisco Airports District Office (SFO-ADO). **Table 2** County Airports summarizes the facilities considered for this APMS Update.

Airport ID	Airport Name	NPIAS Status
ACV	The California Redwood Coast - Humboldt County Airport	NPIAS
O16	Garberville Airport	NPIAS
EKA	Murray Field Airport	NPIAS
FOT	Rohnerville Airport	NPIAS

PROGRAM GOALS AND OBJECTIVES

1. Assist the County in meeting the requirements of Public Law 103-305.
2. Update existing APMS database to reasonably reflect participating airport airfield pavement facilities (inventory, work history, geometry, and PCI).
3. Evaluate each airport's airfield functional pavement condition in accordance with ASTM D5340-20 and FAA Advisory Circular 150/5380-7 based on visual assessment efforts.
4. Evaluate each airport's airfield structural pavement condition in accordance with FAA ACs 150/5320-6, 150/5370-11, and 150/5335-5
5. Provide the County with recommendations on Maintenance, Repair, and Rehabilitation according to FAA Advisory Circular 150/5380-6 and based on pavement conditions and distress data collected (type, severity, and quantities).

PROJECT PERSONNEL

COUNTY STAFF

Title	Project Designation	Personnel
Director of Aviation	Project Manager	Mr. Cody Roggatz

CONSULTANT PERSONNEL

Title	Title Code	Personnel
Program Manager	Project Manager	Robert "Bob" Hamilton, P.E. Bob.Hamilton@kimley-horn.com
Deputy Project Manager	D-PM	Edwin Tamang, P.E. (FL) Edwin.Tamang@kimley-horn.com
Quality Control	QC	Zachary Tait, P.E. Zach.Tait@kimley-horn.com

II. SCOPE OF SERVICES

TASK 1 – PROGRAM INITIATION

Task 1 Program Initiation commences the APMS Update with the County and the Consultant. In Task 1, the Consultant will perform efforts defined by subtasks that initiate the APMS update in accordance with the applicable standards defined in **Table 1.1** Anticipated Request for Information. The Program Initiation will consist of Request for Information and Review, Technical Work Plan, Program Kick-Off, County Staff Interviews, APMS Update, PAVER Database Update and Calibration, Airfield Pavement Network Definition Update, Geographic Information Systems (GIS) development, Data Collection Phasing Plan, Personnel Badging (if necessary) and Logistics, and Data Collection Coordination.

1.1 REQUEST FOR INFORMATION AND RECORDS REVIEW

The Consultant will request record documentation and information that will be required for the APMS. The documents requested will be technical and will be used as the basis of subsequent updates to the existing element of the APMS. The following **Table 1.1** Anticipated Request for Information enumerates a limited list of information needed for the APMS Update.

Table 1.1. Anticipated Request for Information

Item	Description	APMS Update Element
1	Airport Layout Plan (CAD, GIS, PDF)	Airfield Pavement System Inventory Airfield Pavement Network Definition
2	Airport Geographic Information System (Geodatabase, Map Package)	Airfield Pavement System Inventory Airfield Pavement Network Definition Spatial compatibility review
3	Historic Airfield Pavement Construction Project Record Documentation <ol style="list-style-type: none"> 1. Issued for Construction Plans 2. Project Specifications 3. Engineer's Design Report 4. Project Bid Tabulations 5. As-Built Documents 	Airfield Pavement System Inventory Airfield Pavement Network Definition Opinion of Probable Construction Costs Capital Improvement Program Planning
4	Aircraft Fleet Mix / Operational Data	Airfield Pavement System Inventory Airfield Pavement Network Definition Opinion of Probable Construction Costs Structural Remaining Life Analysis Conceptual Pavement Sections Pavement Strength Reporting Capital Improvement Program Planning
5	Planning/Engineering Reports and/or Studies <ol style="list-style-type: none"> 1. Utilities (Domestic Water, Fire Water, Sanitary Sewer, Communications, Gas, etc.) 2. Stormwater/Drainage 3. Electrical Facilities 4. Geotechnical Investigations 5. Airfield Geometry 	Airfield Pavement System Inventory Airfield Pavement Network Definition Condition Data Collection Opinion of Probable Construction Costs Structural Remaining Life Analysis Best Practice Pavement Planning Guide Capital Improvement Program Planning
6	Maintenance Records and Maintenance Program	Airfield Pavement System Inventory Condition Data Collection

Item	Description	APMS Update Element
		Opinion of Probable Construction Costs Structural Remaining Life Analysis Best Practice Pavement Planning Guide
7	Existing Conditions / Topography 1. Subsurface utilities 2. Aerial Imagery (SID, TIFF)	Field Data Collection Capital Improvement Program Planning

The Consultant will prepare a secure file transfer platform using Citrix Sharefile for County Staff to provide the documents and artifacts associated with the Request for Information, alternatively Consultant staff can visit County offices for data acquisition.

The Consultant will prepare a technical memorandum that enumerates the review of the request for information and review of the artifacts provided by the County.

1.2 TECHNICAL WORK PLAN

Upon completion of the review of the information requested, the Consultant will develop a Technical Work Plan. The Technical Work Plan is intended to be a reference document to clearly identify the Project Definition, Project Standards, Data Collection Plan, and Quality Control and Quality Assurance expectations. The Technical Work Plan will include the following elements:

- I. Project Definition
- II. Project Standards
- III. Data Collection Plan
 - a. APMS Network Scope
 - b. County Department of Aviation Interviews
 - c. Data Collection – Phasing and Scheduling
 - i. Functional Condition (PCI)
 - ii. Nondestructive Falling Weight Deflectometer
 - iii. Geotechnical Investigation
- IV. Administration

The Consultant will prepare a Technical Work Plan in an electronic format (PDF) for up to one (1) round of review by the County for feedback. Upon substantial completion and incorporation of reasonable feedback, the Consultant will submit a final Technical Work plan in an electronic format (PDF).

1.3 PROGRAM KICK-OFF MEETING AND STAFF INTERVIEWS

The Consultant will schedule a Program Kick-Off Meeting at the County offices. The Program Kick-Off may include Planning, Engineering, Operations, Facilities, Tower, and/or Stakeholders from the County. The Consultant will prepare a formal agenda outline and agenda PowerPoint presentation subject to up to one (1) round for County Staff review and acceptance. The Program Kick-Off will discuss Scope of Work, Schedule, Request for Information, AOA Access, Concurrent Studies, and Administration; the Program Kick-Off will be for up to two (2) hours. The Consultant will have the following in attendance: Project Manager, Deputy Project Manager, QA/QC Engineer, and a Professional. The Consultant will prepare Program Kick-Off Meeting Minutes subject to up to one (1) round for County Staff review and acceptance. The Staff Interview will be scheduled to follow the Program Kick-Off Meeting and during the same trip event.

1.4 AIRFIELD PAVEMENT SYSTEM INVENTORY UPDATE

1.4.1 PAVER Database Update and Calibration

Based on the review of the data and artifacts provided by the County, the Consultant will convert the prior PAVER 7.0 database to a consolidated PAVER 7.0.10 E70 database. The Consultant will update the PAVER database Pavement System Inventory to reflect airfield section-level characteristics that include pavement work history, pavement geometry accurate to ±25 square feet, Humboldt County Airport or Consultant recommendations for inventory customization, rank, branch use, branch ID, branch name, section ID, section total sample units, and typical slab dimensions. The airfield pavement system inventory characteristics will be modeled or registered with the PAVER database using the 'Inventory' and 'Work History' modules. The Consultant will not procure PAVER 7.0 on behalf of the County or perform installation on County computer. The County will be responsible for procuring software and license for PAVER 7.0.

Work History Updates will incorporate the following provided data:

1. Section geometry updates (length, width, and estimated area). *Area subject to limitations of aerial and/or record drawing interpretation and not intended for AGIS or construction-level accuracy, nor for final construction.*
2. Localized Maintenance and Repair (Localized M&R) work type, quantity, funded amount, applicable specification reference number, layer thickness characteristics, and/or estimated month/year of application (contractor performance, activity, extent, etc.).
3. Major Rehabilitation (Major M&R) work type, quantity, funded amount, Airport Improvement Program (AIP) Number, County Project Number, applicable specification reference number, layer thickness characteristics, and/or estimated month/year of application.

The Inventory Updates will be updated in accordance with **Table 1.4.1** Pavement System Inventory PAVER Data.

Table 1.4.1 Pavement System Inventory PAVER Data

System Inventory Level	Feature Example	Characteristic	Potential Planning Effect
Network	Overall pavement assets maintained by the County	Relative Airport Location Facility Use	Grouping of facilities Budget Plan Overall Condition by Network
Branch	Commonly defined asset name as established by Airport and by use Example: "Runway 08L-26R"	Facility Use Apron Blast Pad Helipad Other Overrun Runway Shoulder Storage Taxiway Taxilane	Prioritization of facilities within a Network for constrained budget scenarios. Localized Preventive and/or Stopgap Maintenance and Repair prioritization.

		Airport-maintained pavement vs. privately-maintained pavement (e.g. FBO ramp)	Eligibility of M&R (e.g. privately maintained).
Section	A defined area of pavement asset that is distinct by the following: Pavement Composition Construction Work History Aircraft Traffic	Surface Type AC – Asphalt Concrete AAC – Asphalt Concrete, overlaid APC – Asphalt Concrete overlaid on PCC PCC – Portland Cement Concrete Aircraft Traffic Loading (e.g. for runway facility) Center “keel” Outer board right/left Rank Based on use, prioritization, and budget constraining prioritization	Application of appropriate Maintenance and Repair treatment. Consideration of appropriate pavement section characteristics for Major Rehabilitation.

The Consultant will assume all provided System Inventory Data (nomenclature, identification, geometric characteristics, etc.), Work History Data (pavement surface type, composition, thickness, age, specification, year of construction, treatment, maintenance, repair, and/or major rehabilitation), Pavement Condition Index Records (historic PCI inspection data, PCI Families, performance models, etc.), and Maintenance, Repair, and Rehabilitation (M&R Policies for Localized Stopgap/Preventive, global treatments, and major M&R, M&R Unit Costs, M&R Cost Curves, etc.), and prior bid tabulation records, are reflective of the previous updates and are deemed acceptable by the County.

1.4.2 Airfield Pavement Network Definition

The Consultant will prepare a Base Drawing model in accordance with the definition of features established by the existing APMS and in consideration of the results of Subtask 1.3. Airfield Pavement Network Definition will be a schematic model representation of the Pavement System Inventory for Branch-Level, Section-Level, and Sample Unit-Level features as shown in **Table 1.4.2** Airfield Pavement Network Definition Map Features. Pavement facilities will be limited to previously defined areas and limited to airfield pavements. Airport pavements such as landside access, driveway, service routes, parking lots, or similar non-aircraft facilities will be excluded.

The Consultant will utilize AutoCAD Civil 3D 2020 to update individual Airfield Pavement Network Definition models and produce a PDF exhibit file based on a standardized AutoCAD template that defines the visual characteristics of each feature. Airfield Pavement Network Definition models are schematic-level and are intended for planning-level, rough order-of-magnitude area determinations. The AutoCAD and PDF data accuracy are not intended for construction purposes. The geometric definition will be based on information obtained from the County’s response to the Request for Information.

If available, the County will provide the Consultant access to orthoimagery that is orthoreferenced and spatially-projected in a standard coordinate system, and CADD-ready aerial imagery files (e.g. .SID, .TIF, .JPG with world files) for the airport. If the County is unable to obtain readily available aerial imagery data for use within AutoCAD Civil 3D 2020, the Consultant will utilize publicly available aerial imagery data (e.g. NearMap). The spatial accuracy is not intended for positional accuracy for the purpose of aeronautical survey-grade accuracy and precision; the spatially projected Base Drawing is intended to gain reasonably accurate Pavement Network Definition geometry (± 25 ft for horizontal vector data and ±1,000 square feet for area association). No vertical elevation data will be identified within the Base

Drawing models. All base models will be developed utilizing the California State Plane Coordinate System using North American Datum 1983 (NAD83) for horizontal positioning.

The Consultant will provide the County a standardized template for review and acceptance that enables each Base Drawing model to comply with the requirements of AC 150/5380-7B and ASTM D5340-20 in the development of Airfield Pavement Network Definition exhibits, as well as for further use in Esri ArcMap and Esri ArcGIS Online and/or Portal.

Table 1.4.2. Airfield Pavement Network Definition Map Features

System-Level	Feature
Branch	1. Branch ID or Name
Section	1. Section ID Tags <ul style="list-style-type: none"> a. Section ID b. Total Sample Units c. Sample Units Inspected d. Surface Type (AC, AAC, APC, or PCC) 2. Sections not inspected due to recent/anticipated pavement construction communicated by airport staff
Sample Unit	1. Sample Unit Number 2. Sample Unit Inspected (Hatch)
Miscellaneous	1. Select Airfield Buildings that interface with pavement (outline only) 2. Select non-aircraft pavement facilities (e.g. service road)

Airfield Pavement Network Definition Map data is not intended to replace the official Airport Layout Plan. Airport geometry is for schematic-level accuracy and is not intended for design-level analysis or quantification. Runway lengths digitized may not reflect FAA 5010 Master Record published dimensions.

1.4.3 Geographic Information System (GIS) Model Development and Data Collection Tools

The Consultant will update the airport-specific feature classes that define Branch-level, Section-level, and Sample Unit-level topology as defined by the ASTM D5340-20 method. The Consultant will utilize elements defined in the Airfield Network Definition and export said elements (Branch-, Section-, and Sample Unit-level topology polygons) from AutoCAD as an Esri-compatible shapefile. The Consultant will utilize Esri ArcGIS Desktop (Advance User License) to define feature class characteristics in accordance with the corresponding Branch-, Section-, and Sample Unit-level attributes.

The Consultant will utilize the resulting feature shapefiles to define Sample Unit-Level “Intelligent Navigation Maps” for use on mobile computing equipment (tablet, handheld GPS, and/or smartphone). Additionally, the Consultant will develop an initial Sample Unit Inspection .kmz file for viewing on Google Earth.

TASK 1 DELIVERABLES

Task Item	Deliverable
1.1 Request for Information and Review	1. Record Documentation Review Summary Memorandum (PDF)
1.2 Technical Work Plan, up to one (1) round of review	2. Final Technical Work Plan (PDF)
1.3 Program Kick-Off	3. Kick-Off Presentation (PDF) 4. Kick-Off Agenda (PDF)

Task Item	Deliverable
1.3 Staff Interview and Site Visit	5. Interview Coordination, Meeting, and Summary of Notes (PDF) 6. Site Visit up to four (4) staff
1.4 Airfield System Inventory Update	7. Airfield Pavement Network Definition (PDF)

TASK 2 – DATA COLLECTION

For this APMS Update, the Consultant will be performing a comprehensive data collection effort that will consist of Functional Data Collection and Nondestructive Testing. Table 2.1.1 Data Collection Program summarizes the type of data collection efforts for the APMS Update evaluation and the corresponding guidance standards and analysis. Limited Geotechnical Investigation will be performed as part of Data Collection for this APMS Update. This APMS Update will exclude evaluation of pavement friction to ascertain pavement roughness.

Table 2.1.1 Data Collection Program

Type	Evaluation	Data Collected / Testing	Guidance	Analysis
Visual Assessment / Pavement Condition Index (PCI) Survey	Functional Condition	Visual distress manifestations; 1. Type 2. Severity 3. Quantity Limited Sampling. Marking paint or chalk will be used to mark sample units.	FAA AC 150/5380-7B ASTM D5340-20	Pavement Condition Index (PCI)
Nondestructive Testing (NDT) using Falling Weight Deflectometer (FWD)	Structural Analysis	Vehicle with FWD equipment in tow. 1. Deflection Basin (Center Test) for AC and PCC Pavements 2. Transverse and Longitudinal Testing for PCC Pavements 3. Corner testing for PCC Pavements Limited Sampling. Marking paint or chalk will be used for reference marks.	FAA AC 150/5370-11B	Structural Remaining Life Pavement Classification Number (PCN)
Geotechnical Investigation	Structural Analysis	Pavement Core(s) 1. Layer Thickness 2. Subgrade	FAA AC 150/5320-6F	Structural Remaining Life Pavement Classification Number (PCN)

2.1 FUNCTIONAL DATA COLLECTION / PCI SURVEYS

All PCI Survey data collection will be performed by trained personnel with “feet on the ground” efforts, utilizing measurement equipment accurate to the nearest one (1) foot. Inspections will be performed in dry weather conditions. Pavement distress data will be evaluated and inventoried by trained pavement inspectors for input into the PAVER database. The pavement inspection process will locate, identify, and categorize all distresses visible in field conditions in accordance with ASTM D5340-20 for flexible pavements (Asphalt Concrete) and rigid Portland Cement Concrete pavements. Sample Units will be defined as an area of 5,000 Square Feet ($\pm 2,000$ Square Feet) for flexible asphalt concrete pavement or 20 Slabs (± 8 slabs) for rigid Portland Cement Concrete pavement.

2.1.1 Primary PCI Data Collection

Inspection personnel will perform all efforts at the airport in accordance with safe practices confirmed with the County (e.g. safety vests, lighted vehicle, pull back basis, tower communications, airport escort provisions). PCI Inspection personnel will actively monitor the Common Traffic Advisory Frequency (CTAF). Inspection personnel will mark Sample Units in field with marking paint or chalk and inventory representative photographs of the data collection effort. The representative photographic log will consist of at least one (1) digital photograph per Section. Select representative photographs will be incorporated into report documents with identification of Branch, Section, Sample Unit, and observed distress types. For this APMS Update Sample-Units, when appropriate, will be based on the defined Sample Units that have been inspected previously.

Any pavement that is subject to upcoming construction, specific to structural rehabilitation/repair improvements, will be omitted from current data collection inspection for this Project. Pavement facilities subject to construction activity as recent as calendar year 2021 will not be inspected and assumed to have a Section PCI of 100; work history records will reflect known work. Pavement facilities subject to construction activity as early as 1-year from scheduled data collection will not be inspected and assumed to have a Section PCI of 100 with work history records to reflect anticipated work.

Inspection teams will consist of a team leader provided by the Consultant and at least one (1) pavement inspector who will work at the direction of the team leader. The County acknowledges that inspection periods often exceed the standard 8-hour workday.

Should inspection delays outside of Consultant's control occur, the County will allow for modification to schedule for inspections and overall program. Additional efforts required due to inspection delays outside of Consultant's control will be billed on an hourly basis based on the agreed upon schedule of rates. Factors that may introduce delay may include, but are not limited, to the following:

- Airport Coordination (access/escort)
- Climate Conditions (snow, rain, high winds, etc.)
- Hazard Conditions (seismic, fire, pandemic, etc.)
- Emergency Airport Events (e.g. fire rescue, other emergency events)

Consultant shall not proceed beyond approved scope of work and costs without 1) both Airport and Consultant agree on nature of the delay, 2) Consultant provides estimate of the additional level of effort, including hours and costs, for Airport approval, and 3) Airport provides approval before Consultant

2.2 NONDESTRUCTIVE TESTING (NDT) FALLING WEIGHT DEFLECTOMETER (FWD)

The Consultant will utilize a subconsultant, Quality Engineering Solutions, Inc. (“QES”) for the non-destructive testing falling weight deflectometer data collection and analysis of select airfield pavements for the APMS Update. The nondestructive testing will be limited to the two runway (2) facilities at ACV.

The Subconsultant will acquire quantitative data for use as reliable input for the Structural Analysis in accordance with the FAA Advisory Circular 150/5370-11B, “Use of Nondestructive Testing in the Evaluation of Airport Pavements”. The Subconsultant will develop a Test Plan in accordance with the testing location and spacing guidance defined by the FAA AC 150/5370-11B for “Network Level” evaluation. The NDT efforts will include 1) Deflection Basin (Center Test) for AC and PCC pavements; 2) Transverse and Longitudinal Joint testing for PCC pavements; and 3) Corner Testing for PCC pavements.

2.3 GEOTECHNICAL INVESTIGATION

The Consultant will utilize a subconsultant, SHN Consulting Engineers and Geologists (“SHN”) to perform Geotechnical Investigation or Data Collection as part of this APMS Update. The County will provide the Consultant all readily available Geotechnical record documentation for use. The Consultant will rely on the Geotechnical record documentation for conservative estimates of subsurface conditions for the development of a Pavement System Inventory, Conceptual Pavement Section Design, estimated pavement layer characteristics from nondestructive testing and structural evaluation, remaining structural life analysis, and PCN determination based on the Technical Method.

The investigation will be limited to two (2) pavement cores for each of the two (2) runways at ACV Airport. The field work will be performed at night.

TASK 2 DELIVERABLES	
Task Item	Deliverable
2.1 Functional Data Collection / PCI Surveys	A. Daily In-Brief and De-Brief Coordination, Data for Task 2
2.2 Nondestructive Testing FWD	B. Daily In-Brief and De-Brief Coordination, Data for Task 2
2.3 Geotechnical Investigation	C. Daily In-Brief and De-Brief Coordination, Data for Task 2 D. Pavement Core Patch Repair

TASK 3 – ANALYSIS AND REPORTING

3.1 ANALYSIS

3.1.1 Functional Analysis

The Consultant will perform functional condition analysis of the data collected using PAVER software. Prior to the data migration from field data collection efforts, the Consultant will perform Pavement System Inventory updates based on field verified observations. Examples of field observations that may affect system inventory information include Section limits, Section geometry, and Branch identification. The functional condition analysis will consist of performing calculation of the Sample Unit-level PCI, Section-level area-weighted PCI, and the Branch-level PCI values.

Pavement Performance Models / PCI Family Models Update

The Consultant will update the existing pavement performance models (“PCI Family Models”) based on updated condition data for the development of forecasted PCI values at the Section level. Using PAVER, the Consultant will analyze work history, pavement composition, functional Branch use, Section definition, and historic condition at the Section level to develop statistical predictive model curves, defined as “PCI Families,” to forecast Section-level PCI. For the data integrity of the update, the Performance Model analysis and Prediction Curve development will commence upon the completion of the analysis of condition data for this APMS Update. The Consultant will rely on the accuracy and acceptance of the prior APMS Updates work history and condition data.

Pavement Functional Condition Forecasting

The Consultant will utilize the updated PCI Family Models to forecast Section-level PCI values for this APMS Update. It should be noted the functional forecasting of PCI values at the Section-level is intended for planning-level estimation; all project definition should be made with consideration of design-level investigation, structural evaluation, and traffic loading.

The following **Table 3.1.1** Functional Analysis provides an outline of the analysis that will be performed.

Table 3.1.1 Functional Analysis

Type of Analysis	Evaluation	Resultant
Inventory	<ol style="list-style-type: none"> 1. Branch Definition 2. Section Definition 3. Pavement Surface Type 4. Pavement Work History 	Exhibits Table Charts
Current Condition	<ol style="list-style-type: none"> 1. Branch Condition Summary 2. Section Condition Summary 3. Pavement Distress Mechanism Summary 	Exhibits Tables Charts
Forecasted Conditions	<ol style="list-style-type: none"> 1. Update to Pavement Performance Models ("PCI Condition Families") 2. Predicted Section Condition Summary (5-Year Duration, each year) 3. Remaining Functional Life based on a Critical PCI of 70 	PAVER PCI Condition Families Exhibits Tables Charts
Climatic Conditions	<ol style="list-style-type: none"> 1. Average Annual Temperature High/Low (°F), Monthly Summary (from published data) 2. Average Precipitation (Inches), Monthly Summary (from published data) 	Table Charts

3.1.2 Structural Evaluation

The Consultant will performed analysis limited to Structural Remaining Life Analysis and Pavement Classification Number / Pavement Classification Rating. The proposed scope excludes nondestructive testing in accordance with FAA AC 150/5335-5 and geotechnical investigation. It is assumed that the County will provide all necessary nondestructive testing and geotechnical investigation data for the Structural Remaining Life and/or PCN (PCR) analysis. It is assumed the County's scope of work with Mead & Hunt will provide reliable data required for the aforementioned analysis.

~~The Consultant will work with a Subconsultant, QES, to process the NDT data for the Structural Evaluation of the airfield pavements limited to the runways at ACV.~~

NDT Data Reduction

~~The Subconsultant will review and reduce the raw data collection during the NDT testing. The raw data will be reviewed for any anomalies recorded during testing. The data will be converted into a useable format to complete the structural analysis. The data will be organized by APMS section in accordance with the Airport Pavement Network Definition.~~

Impulse Stiffness Modulus (ISM)

~~The maximum FWD deflections (deflections occurring directly under the FWD load plate) and the FWD Load will be analyzed to identify pavement strength and assess the overall support conditions of the in-place pavements. The ISM is the FWD load (pounds) divided by the measured deflection. The Subconsultant will prepare ISM profile plots along a scale plan view of the pavement facilities assessed. The ISM values from each NDT test location will be plotted against an established stationing of each~~

pavement section. The Subconsultant will prepare a narrative summary for each Branch-level facility evaluated. The analysis will be conducted in accordance with the FAA AC 150/5370-11B Use of Nondestructive Testing in the Evaluation of Airport Pavements. The results of the analysis will be depicted in graphical form, tabular form, and visually with a plan view of the pavement facilities.

Backcalculation of Pavement Layer Strengths

A pavement layer strength analysis will be performed to identify the stiffness of the AC and PCC layers, the base course beneath the surface layers, and the underlying subgrade support estimated characteristics. The pavement layer strength analysis will be performed using a technique called backcalculation. The backcalculated modulus values may be examined to draw some conclusions about the degree of structural deterioration in the pavement layers and the expected remaining life of the pavement.

The general principle of backcalculation is that the deflections measured by the FWD are dependent on the following parameters:

- A. Thickness and stiffness of the pavement layers
- B. Stiffness of the foundation
- C. Degree of friction between the pavement layers
- D. Magnitude of applied load
- E. Radius of applied load
- F. Rate of loading
- G. Position of the deflection sensors

If the loading, deflection, and layer thickness parameters are known and the interface friction condition is assumed, the measured pavement deflections may be used to solve for the stiffness of the pavement layers and foundation.

The backcalculations will be completed utilizing closed-form or iteration-based tools in accordance with FAA Advisory Circular 150/5370-11B "Use of Nondestructive Testing in the Evaluation of Airport Pavements". For the iteration-based tools, the Subconsultant should use linear elastic backcalculation programs such as BAKFAA to estimate pavement layer characteristics. The Subconsultant will summarize the data for input for PCN determination using COMFAA and Remaining Structural Life Analysis using FAARFIELD. However, if the FAA AC 150/5335-5D is finalized, both the PCR and Remaining Structural Life will be analyzed using FAARFIELD. The Subconsultant will rely on existing data for existing pavement thickness and composition information for all pavement sections provided by the County through the prior APMS database.

The County will provide detailed Aircraft Traffic Fleet Mix data for all facilities subject PCI Survey and NDT Data Collection.

Table 3.1.2 Aircraft Traffic Fleet Mix (Example)

Aircraft Name/Model	Gross Taxi Weight (lbs)	Annual Departures	Annual Arrivals	Annual Growth	Airfield Facility Usage and Utilization
B737-900	174,700 lbs	24,000	24,000	8%	Runway 12-30 (100%)

						Taxiway W (100%) Taxiway T (100%)
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Transverse and Longitudinal Joint Load Transfer Efficiency Analysis (PCC Pavements)

For PCC pavements Subconsultant will use the NDT transverse and longitudinal joint deflection data to determine what percentage of the total main gear weight of an aircraft is transferred from the loaded slab to the unloaded slab. As the amount of load that is transferred to the unloaded slab increases, the flexural stress in the loaded slab decreases and the pavement life is extended. The amount of load transfer depends on many factors, including gear configuration, tire contact area, pavement temperature, use of dowel bars, and use of a stabilized base beneath the PCC surface layer.

Void Analysis (PCC Pavements)

Another important characteristic of a PCC pavement is the slab support conditions. One of the assumptions made during the backcalculation of PCC pavements is that the entire slab is in full contact with the foundation. The presence of surface distresses such as corner breaks, joint faulting, and slab cracking, indicates that a loss of support may exist in the pavement section. The focus of the void analysis is near joints or slab corners.

Remaining Structural Life Analysis

Remaining structural life computations will be completed for each pavement section of the two (2) runway facilities ACV Airport utilizing FAA software, FAARFIELD. Subconsultant will utilize the existing pavement thickness and composition information and aircraft traffic information provided by the County in conjunction with the results of the backcalculated elastic modulus of the subgrade to complete the remaining life computations. Deliverables will include FAARFIELD files. **This analysis will consider nondestructive data Geotechnical data provided by the County and will be limited to the areas subject to known pavement section and subgrade characteristics. Specific data may include estimated pavement section characteristics and subgrade characteristics at the section-level.**

Pavement Classification Number (PCN) Determination

The pavement strength will be reported in accordance with FAA AC 150/5335-5C. The current FAA AC utilizes a Pavement Classification Number (PCN) method of reporting pavement strength and will be determined using COMFAA. It should be noted that the FAA AC 150/5335-5D Draft may be adopted during the duration of the Contract. If the draft is adopted, the Consultant will reporting the pavement strength in accordance with the Pavement Classification Rating (PCR) rating system and will be determined utilizing FAARFIELD 2.0. The pavement strength will be reported for all runway facilities at ACV only. **This analysis will consider nondestructive data Geotechnical data provided by the County. Specific data may include estimated pavement section characteristics and subgrade characteristics at the section-level.**

3.1.3 Maintenance, Repair, Rehabilitation, and Reconstruction Planning

The Consultant will develop a strategic airfield pavement maintenance policy for both flexible hot-mix asphalt concrete (AC) and rigid Portland cement concrete (PCC) pavement sections for the County. The Consultant will reference the FAA Advisory Circular 150/5380-6C Guidelines and Procedures for

Maintenance of Airport Pavements and Air Force Civil Engineer Center Engineering Technical Letter 14-3: Preventive Maintenance Plan for Airfield Pavements. Task 3.1.3 will be developed for all five (5) airports maintained by the County.

Current Condition Localized Maintenance and Repair Policy

The Consultant will develop a Localized M&R Policy based on guidance provided in the FAA Advisory Circular 150/5380-6C. Localized M&R will be identified based on the Section-level extrapolation of distress manifestations observed as part of the Functional Data Collection. Localized Preventive M&R will be defined as pavement treatments applied to Sections above a PCI value of 69; Localized Stopgap M&R will be defined as pavement treatments applied to Sections at or below a PCI Value of 69. **Table 3.1.3** provides an example distress repair table policy for rigid PCC pavement.

Table 3.1.3. Example Localized M&R Table Policy for Rigid Portland Cement Concrete (USAF ETL 14-3)

Distress	Severity	Description	Code	Work Type	Work Unit
61	High	BLOW-UP	PA-PF	Patching - PCC Full Depth	SqFt
61	Low	BLOW-UP	PA-PF	Patching - PCC Full Depth	SqFt
61	Medium	BLOW-UP	PA-PF	Patching - PCC Full Depth	SqFt
62	High	CORNER BREAK	PA-PF	Patching - PCC Full Depth	SqFt
62	Low	CORNER BREAK	CS-PC	Crack Sealing - PCC	Ft
62	Medium	CORNER BREAK	PA-PF	Patching - PCC Full Depth	SqFt
63	High	LINEAR CR	PA-PP	Patching - PCC Partial Depth	SqFt
63	Medium	LINEAR CR	CS-PC	Crack Sealing - PCC	Ft
64	High	DURABIL. CR	SL-PC	Slab Replacement - PCC	SqFt
64	Medium	DURABIL. CR	PA-PF	Patching - PCC Full Depth	SqFt
65	High	JT SEAL DMG	JS-LC	Joint Seal (Localized)	Ft
65	Medium	JT SEAL DMG	JS-LC	Joint Seal (Localized)	Ft
66	High	SMALL PATCH	PA-PP	Patching - PCC Partial Depth	SqFt
66	Medium	SMALL PATCH	PA-PP	Patching - PCC Partial Depth	SqFt
67	High	LARGE PATCH	PA-PF	Patching - PCC Full Depth	SqFt
67	Medium	LARGE PATCH	PA-PF	Patching - PCC Full Depth	SqFt
69	N	PUMPING	JS-LC	Joint Seal (Localized)	Ft
70	High	SCALING	SL-PC	Slab Replacement - PCC	SqFt
70	Medium	SCALING	PA-PP	Patching - PCC Partial Depth	SqFt
71	High	FAULTING	GR-PP	Grinding (Localized)	Ft
71	Medium	FAULTING	GR-PP	Grinding (Localized)	Ft
72	High	SHAT. SLAB	SL-PC	Slab Replacement - PCC	SqFt
72	Medium	SHAT. SLAB	SL-PC	Slab Replacement - PCC	SqFt
74	High	JOINT SPALL	PA-PP	Patching - PCC Partial Depth	SqFt
74	Medium	JOINT SPALL	PA-PP	Patching - PCC Partial Depth	SqFt
75	High	CORNER SPALL	PA-PP	Patching - PCC Partial Depth	SqFt
75	Medium	CORNER SPALL	PA-PP	Patching - PCC Partial Depth	SqFt
76	High	ASR	SL-PC	Slab Replacement - PCC	SqFt

Distress	Severity	Description	Code	Work Type	Work Unit
76	Medium	ASR	SL-PC	Slab Replacement - PCC	SqFt

Rehabilitation and Reconstruction Planning

The Consultant will work with the County to develop practical Major Rehabilitation and Reconstruction policies based on preliminary development of pavement performance models and comparison to the theoretical critical PCI value ranges of 55 to 69 for Rehabilitation and 0 to 54 for Reconstruction. Such activities could include mill and hot-mix asphalt overlay and reconstruction. This analysis will be conducted with no constraints to budgets to identify all pavement projects based on the aforementioned PCI ranges for a 5-year duration. It is recommended that the County use this as a planning tool for future project development and prioritization. A policy table will program the major rehabilitation work identified at the pavement Section-level based on current and predicted pavement PCI.

The County should consider the major rehabilitation work types of mill and overlay, PCC restoration, and reconstruction planning-level classifications only. Additional design-level investigation in accordance to the FAA Advisory Circulars will be required to identify specific areas within each section that are subject to reconstruction, mill and overlay, and PCC restoration. The work and budgets identified are intended for the planning-level, not the design-level. Areas identified as mill and overlay may, in fact, require select areas of reconstruction, should load-based distresses observed warrant it.

Opinion of Probable Construction Cost Planning

The Consultant will request and review local construction bid tabulations of historic (within the last 5 years) construction costs of airfield pavements at the County airports. The Consultant will develop conceptual pavement sections based on a planning-level assumption of aircraft fleet mix and subgrade conditions. Pavement sections will be developed for flexible and rigid pavement and will be based on the application of the FAA Circular 150/5320-6F "Airport Pavement Design and Evaluation". The conceptual pavement sections are intended for planning-level efforts and will not be a design-level determination. The maintenance and repair planning-level opinion of probable construction costs will be intended for planning purposes based on the conceptual pavement sections.

For the purpose of the APMS, the Consultant has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs are based on the information known to Consultant at this time and represent only the Consultant's judgment as a design professional familiar with the construction industry. The Consultant cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable construction costs.

3.1.4 Budget Scenario Analysis

The Consultant will utilize PAVER to perform Budget Scenario Analysis to each airports forecasted network-level PCI values after a 5-year period based on budgetary inputs. The following scenarios will be evaluated:

1. Unconstrained Funding
2. Current Funding (information provided by County)
3. Maintain Current Network-Level PCI
4. Funding Alternative 1
5. No Spending

3.1.5 Capital Improvement Program (CIP) Recommendations

The Consultant will develop a 5-Year Capital Improvement Program Recommendation plan for each airport that considers the Functional Condition, Structural Evaluation (ACV only), and collected Geotechnical data provided by the County. Additionally, the Consultant will request and review documents and/or applicable studies that may inform airfield pavement construction projects. The 5-Year CIP will be developed in a five (5) step process, inclusive of two (2) reviews by the County during two (2) in-person workshops as described in **Table 3.1.5**.

Table 3.1.5 CIP Development Process

Development Stage	Process	Coordination
Post-Evaluation Airfield Site Visit	<ol style="list-style-type: none"> 1. Field Visit for up to two (2) days with County Staff to review results of Subtask 3.1.1 and 3.1.2. 2. Provide Post-Evaluation Map Tracker for Comments 	Airport Coordinates: <ol style="list-style-type: none"> A. Feedback prior to field visit B. Access, Vehicle, and Escort
Initial CIP Based on Condition	<ol style="list-style-type: none"> 1. Overlay of Data <ol style="list-style-type: none"> a. Functional b. Structural 2. Scope Area Phasing 3. Non-Pavement Consideration 4. Airport Priority <p><i>No sequencing, ROM costs</i></p>	Airport Provided Input: <ol style="list-style-type: none"> A. Planned Projects B. Hotspot / RIM Issues C. Geometry Studies D. Utility Study E. Drainage Study
Airport Workshop #1 Discussion and Prioritization	<ol style="list-style-type: none"> 1. Project Scope Discussion <ol style="list-style-type: none"> a. Eligibility b. Justification 2. Project Priority 3. County Department Input 4. County Stakeholder Considerations 	<ol style="list-style-type: none"> A. Feedback on Initial Need B. County Prioritization C. Concurrence on Program Cost Assumptions D. Concurrence on Sequencing
Revised CIP Based on Condition and Airport Input	<ol style="list-style-type: none"> 1. Scope Boundary Definition 2. Pavement Rehab/Recon Concept 3. Updated Geometry 4. Non-Pavement Factors 	
Airport Workshop #2 Fine Tuning	<ol style="list-style-type: none"> 1. Concurrence on sequencing 2. Concurrence on project cost assumptions 3. Concurrence on CIP Narrative <ol style="list-style-type: none"> a. Eligibility b. Justification c. Budget Summary d. Work Code Identification 	

Upon concurrence of the CIP recommendations, the Consultant will prepare an opinion of probable construction cost narrative for each project identified in the 5-year CIP recommendation.

3.2 REPORT

The Consultant will prepare an executive summary report and a comprehensive technical report document. The documents will be developed to collect the pertinent data associated with the APMS Update. Each document will be prepared for the County for review and acceptance for up to two (2)

rounds of review and acceptance. The Consultant will prepare a Submittal Review Comment Form for County staff to use to organize comments and track resolutions of County review efforts.

3.2.1 Countywide Executive Summary Report

An Executive Summary Report will be prepared for a wide-range audience that summarizes the efforts for the APMS. This document will be highly visual and graphically stylized to communicate a summary of the program elements, pavement condition results, and major rehabilitation planning.

3.2.2 Individual Airport Technical Reports

The Technical Report will consist of the technical documentation for each aforementioned task and will generally follow the report outline in **Table 3.2.2**, however this outline may be subject to change.

Table 3.2.2. Technical Report Elements

Major Section	Technical Communication	Content
Executive Summary	A brief summary of the results of the APMS, specific to condition results and Major Rehabilitation needs.	Table of Current Section-Level PCI Inventory Data Table of 5-Year Forecasted Section-Level PCI Table of Major Rehabilitation Need
Section 1 – Introduction / Overview	An introduction of APMS scope, background, FAA requirements, objective, technical purpose, and limitations.	
Section 2 – Methodology	A brief narrative of FAA requirements and methodology utilized for APMS effort.	Figure of Conceptual Life-Cycle of Pavement and Optimal Timing of Pavement Treatments in Consideration of Cost Increases
Section 3 – Airfield Pavement System Inventory	A summary of work history and Inventory data. Depict tabular data, figures, and charts intended to summarize System Inventory data.	Chart/Figure Pavement Area by Estimated Age Chart/Figure Pavement Area by Functional Use Chart/Figure Pavement Area by Surface Type Table of Pavement System Inventory Data Map of Work History Updates
Section 4 – Functional Evaluation	A summary of current and forecasted pavement conditions. Select narrative of Branch-level distress observations.	Chart/Figure Network-level analysis Chart/Figure Branch-level analysis Chart/Figure Section-level analysis Chart/Figure 5-Year Forecasted Section-Level PCI Table 5-Year Forecasted Section-Level PCI Map Current Section-Level PCI Map 5-Year Forecasted Section-Level PCI
Section 5 – Structural Evaluation	A narrative explaining method and limitations of PCN determination, estimated pavement layer strengths, and estimated remaining structural life.	Table of Assumed Aircraft Fleet Mix and Traffic Data Table of Subgrade Category Assumptions
Section 6 – Localized Maintenance and Repair Planning	A narrative stating approach to localized M&R. Distress-Repair definition for AC and PCC.	Distress-Repair Tables Repair Planning-level Unit Cost Summary Airport Specific Localized M&R Needs
Section 7 – Budget Scenario Analysis	A narrative of budget scenario simulation approach and CIP development.	Table Comparison of Budget Scenario Simulations 1. Unconstrained 2. No Budget 3. Constrained 1 4. Budget Based on Target Performance
Section 8 – Major Rehabilitation Planning / Capital Improvement Program Recommendations	A narrative stating approach for Major Rehabilitation for pavements below PCI 70. 5-year forecast of needs.	Table of 5-Year Forecasted Major Rehabilitation Needs Map of 5-Year Major Rehabilitation Needs
Section 9 – Conclusion	A narrative of recommended continued pavement condition monitoring and record-keeping.	
Appendix A – Airfield Pavement Analysis Tables		Table of System Inventory Data Table of Current PCI Inventory Data Table of 5-Year Forecasted PCI Data PAVER Branch Condition Report PAVER Section Condition Report

Major Section	Technical Communication	Content
Appendix B – Airfield Pavement Localized Maintenance and Repair		Table of Current Localized M&R Need 1. Branch and Section 2. Surface Type and Age Rehabilitation Type, Area, Cost
Appendix C – Airfield Pavement Major Rehabilitation Planning		Table of 5-Year Forecasted Major Rehabilitation Need 1. Branch and Section 2. Surface Type and Age 3. Rehabilitation Type, Area, Cost
Appendix D – Technical Map Exhibits	Highly visual technical exhibits that depict the results of the APMS.	Airfield Pavement Network Definition Airfield Pavement System Inventory Work History Airfield Pavement Condition Index (Current) Airfield Pavement Condition Index (5-Year) Airfield Runway Pavement Classification Number Airfield Pavement CIP Recommendations (5-Year)
Appendix E – Inspection Photograph Documentation		2-Photographs Per Page, Each Photo Identifies Branch, Section, Sample Unit, and Observed Distresses
Appendix F – Inspection Distress Details		PAVER-Generated "Re-Inspection Report"
Appendix G – Condition at Last Inspection		Table of Section-Level Condition Results 1. Inventory 2. Distress Type Table of Section-Level Extrapolated Distresses
Appendix H – Standard PAVER Work History Report		PAVER Work History Report

The Consultant will utilize both AutoCAD Civil 3D and Esri ArcMap to develop Technical Exhibits for the Technical Report. The following describes the content of each exhibit:

1. *Airfield Pavement Network Definition Exhibit* – this exhibit will be the updated color graphic of the Network Definition showing Branch, Section, and Sample Units defined for the airport, based on field verification. Airport staff will be able to utilize the maps for future PCI Survey Inspections.
2. *Airfield Pavement System Inventory Work History Exhibit* – this exhibit will depict the major work history information provided by the County as a color graphic using the Airfield Pavement Network Definition Exhibit as a base.
3. *Airfield Pavement Condition Index Exhibit* – this exhibit will depict color graphics of the resulting PCI Values and condition category as defined by ASTM. Annotation will consist of airfield pavement facilities' Branch, Section ID, Section Area-Weighted PCI Value, and Rating.
4. *Airfield Forecasted 5-Year Pavement Condition Index Exhibit* – this exhibit will depict color graphics of the resulting PCI Values and condition categories as defined by ASTM. Annotation will consist of airfield pavement facilities' Branch, Section ID, Section Area-Weighted PCI Value, and Rating for the forecasted value at the end of a 5-year duration.

5. *Airfield Runway Pavement Classification Number Exhibit* – this exhibit will depict color graphics of the resulting PCN numerical value code, based on the results of the Technical Method as defined by FAA Advisory Circular 150/5335-5C.
6. *Airfield Pavement 5-Year Capital Improvement Program Recommendation Exhibit* – this exhibit will depict color graphics of the resulting Major Rehabilitation planning projects and/or activity (“M&R”) identified based on current PCI Values and predicted PCI Values. Annotation will consist of airfield pavement facilities’ Branch, Section ID, Section Area-Weighted PCI Value at time of M&R, and planning-level opinion of probable construction costs.

TASK 3 DELIVERABLES	
Task Item	Deliverable
3.1 Analysis – Preliminary PCI and PCN (PCR)	A. Technical Memorandum Summarizing Preliminary PCI and PCN Data (PDF)
3.1 Analysis – Draft Budget Scenario Analysis	B. One (1) Teleconference Meeting to discuss Budget Scenario Inputs. Attendance and Meeting Minutes (PDF)
3.1 Analysis – CIP Development	C. Initial CIP Based on Condition Exhibit (PDF) D. Airport Workshop #1 <ol style="list-style-type: none"> a. Presentation (PDF) b. Attendance of up to three (3) personnel c. Meeting Minutes (PDF) E. Revised CIP Exhibit (PDF) and Program Opinion of Probable Construction Cost (PDF) F. Airport Workshop #2 <ol style="list-style-type: none"> a. Presentation (PDF) b. Attendance of up to three (3) c. Meeting Minutes (PDF)
3.2 Draft Technical Report	G. Draft Technical Report (PDF) subject up to two (2) rounds of review, reasonable feedback, and revisions.
3.2 Draft Executive Summary Report	H. Draft Executive Summary Report (PDF) subject up to two (2) rounds of review, reasonable feedback, and revisions.
3.2 Final Reports	I. Executive Summary Report <ol style="list-style-type: none"> a. Electronic (PDF) J. Technical Report (PDF)

TASK 4 INTERACTIVE MAP DASHBOARD

The Consultant will develop a non-proprietary Interactive Map Dashboard that effectively communicates the results of the APMS Update. The map dashboard will be dynamic in nature, allowing users to access data on multiple platforms. The map dashboard will be highly graphical and give users access to PCI results, maintenance needs, and major rehabilitation recommendations. The interactive map dashboard will be developed utilizing commercial off-the-shelf software (COTS), specifically ArcGIS Portal and/or ArcGIS Online. This effort assumes that the County will provide the Consultant access to the County's existing Esri ArcMap and ArcGIS Portal/Online system. The Consultant will provide APMS Update interactive map data for the County to host. The Consultant will not procure hardware or software on behalf of the County for hosting the interactive map dashboard. The County will provide access for the Consultant to the Humboldt GIS Portal. The Consultant will prepare a GIS Interactive Map Dashboard Kick-Off Meeting to ensure adequate coordination and establishment of expectations.

4.1 CREATING GIS ELEMENTS USING ESRI ARCMAP

The Consultant will utilize Esri ArcMap to utilize shapefiles (.shp) initially created from AutoCAD Civil 3D 2018 (or 2020) drawings (.dwg) with data results from PAVER in Microsoft Excel (.xlsx) to develop Esri Feature Class elements that retain geometric characteristics and the resultant analysis data. The Feature Class elements will be within a Geodatabase that considers the North American Datum of 1983 Nevada State Plan Coordinate System. The Feature Class elements will be used for reporting pavement condition and planning-level analysis; data will not be accurate for construction or final quantities. The GIS elements will be archived as a Map Package (.mpk) file.

4.2 CREATING WEB DASHBOARD USING THE COUNTY'S ESRI ARCGIS PORTAL

The Consultant will utilize the aforementioned Map Package within ArcGIS Portal. This Scope of Work assumes that the County will have access to a 'Creator/GIS Professional'-level user account within the County's ArcGIS Portal. This Scope of Work assumes that the County will provide the Consultant up to two (2) 'Creator/GIS Professional'-level user accounts within the County ArcGIS Portal for the contract duration. ArcGIS Portal will be utilized to create a feature service that retains feature layers that convey the results of the APMS Update for this Scope of Work. The feature service will be subject to the approval and acceptance of the data by the County. The feature service will be the 'web map' utilized within the ArcGIS Portal 'Web Dashboard Builder' to develop the 'web dashboard'. The web dashboard will be customized within the available COTS features. No customization, programming, coding, or software development will be performed within this Scope of Work. Should the County's ArcGIS Portal be unavailable to the Consultant, the County will provide access to the County's Esri ArcGIS Online system and provide adequate Esri ArcGIS Online credits to host the data; this may be up to one thousand (1,000) credits. The Consultant will not host the final Interactive Map Web Dashboard for this APMS Update. The Consultant will not be responsible for fees associated with Esri ArcGIS Portal and/or ArcGIS Online account(s). **Table 4.1** defines the organization of data that will be provided in the Web Dashboard deliverable

The Consultant will prepare a draft map dashboard at the receipt of final round of draft report comments from the County. The Consultant will provide the County up to twenty (20) business days to review and provide reasonable feedback on draft map service dashboard.

Table 4.1. Information for ArcGIS Portal Map Service

System Inventory Level	Feature Example	Attribute Data	Feature Type
Section	A defined area of pavement asset that is distinct by the following: Pavement Composition Construction Work History Aircraft Traffic	Airport Location ID Airport Name Branch Name Branch Identification Branch Use Section Identification Estimated Last Major Construction Work Date Surface Type Section Area (SF or SY) Last PCI Survey Inspection Date Last Inspected PCI Value Last Inspected PCI Category Forecasted PCI Values (5-year) Forecasted PCI Category (5-Year) Major Rehabilitation Year Major Rehabilitation Treatment Type (Planning-Level) Planning-level Opinion of Probable Unit Construction Cost	Polygons
Section	Pavement Classification Number (or Pavement Classification Rating)	Pavement Characteristic by Aircraft Use 1. "No PCN Determined" 2. "Insufficient PCN" 3. "Overloaded" 4. "Sufficient PCN"	Polygons

TASK 4 DELIVERABLES	
Task Item	Deliverable
4.1 Interactive Map Dashboard Kick-Off Meeting	A. In-Person Meeting, up to two (2) Professionals. Consultant will prepare agenda and prepare meeting minutes.
4.2 Interactive Map Dashboard Development	B. Esri ArcMap Map Package (.mpk) C. Draft Interactive Map Dashboard subject to twenty (20) business days of review and reasonable detailed comments. D. Final Esri ArcGIS Portal Map on County system.

TASK 5 – PROJECT ADMINISTRATION AND COORDINATION

5.1 MONTHLY INVOICING PACKAGES

It is understood from the County this Scope of Work will be executed as a Fixed Lump-Sum task order. The Consultant will prepare monthly invoicing packages for each task as a percent complete on a monthly basis. Monthly invoicing will consist of efforts expended on a percent complete and with a monthly one (1) page progress report.

5.2 MONTHLY PROGRESS TELECONFERENCE

The Consultant will host monthly progress meetings via teleconference (Microsoft Teams or Skype) with the County. The Consultant will prepare meetings minutes for each monthly meeting.

III. PERIOD OF PERFORMANCE

This Contract will have an anticipated period of performance of 1-years from Notice to Proceed and, at the direction of the County, extended by twelve (12) months.

IV. SERVICES NOT INCLUDED AND/OR TASK ORDER EXCLUSIONS

TASK ORDER EXCLUSIONS

Services identified with ~~strike through~~ will be considered as additional services. Any other services, including but not limited to the following, are not included in this Agreement:

1. Additional Budget Scenario Analysis
2. Additional Capital Improvement Program Analysis
3. Additional Interactive GIS Dashboard Development
4. Airport Layout Updates
5. Additional Geotechnical Investigation (Coring, Boring, Laboratory Testing)
6. Additional Nondestructive Testing using Falling Weight Deflectometer
7. Additional PCI Survey
8. Additional Capital Improvement Program efforts
9. Additional Landside Pavement Management Program efforts
10. Establishment of Geodetic Control in Accordance with FAA AC 150/5300-16A
11. Airport Geographic Information System (AGIS) in Accordance with FAA AC 150/5300-18B
12. Aerial Imaging and/or Remote Sensing for Airport Surveys in Accordance with FAA AC 150/5300-17C
13. Topographic Surveys to Obtain Runway Elevations
14. Review of Aircraft Operation Data for Design Aircraft Determination
15. Determination of Airport Reference Codes
16. Determination of Aircraft Approach Categories and Airplane Design Groups
17. Determination of Visibility Minimums
18. Determination of Approach Slopes
19. Additional Technical Training
 - a. Autodesk AutoCAD Civil 3D Training
 - b. ESRI ArcMap Training
 - c. ESRI ArcGIS Online Training
20. Additional In-Person Meetings (agenda, agenda presentation, and meeting minutes), plus Travel Expenses
21. Additional Teleconference Meetings (agenda, agenda presentation, and meeting minutes)
22. Additional Hardcopy Printing and/or Reprographics for Report Deliverables.
23. Additional analysis not identified.
24. Additional review of submittals not identified.

No design-level construction drawing/documents will be prepared as part of this Scope of Work. No Airport Geographic Information System (AGIS) will be developed as part of this Scope of Work. No land survey will be performed in accordance with the American Land Title Association (ALTA)/American Congress on Surveying and Mapping (ACSM) standards.

INFORMATION PROVIDED BY CLIENT

The following information will be provided by the County for the use and reliance by the Consultant:

1. Nondestructive FWD testing results for all facilities subject to Structural Remaining Life and PCN (PCR) analysis.
2. Geotechnical investigation and testing results for all facilities subject to Structural Remaining Life and PCN (PCR) analysis.
3. Aircraft Traffic Fleet Mix (current and forecasted)
4. Airfield Development Project Record Documentation
 - a. Design Documents
 - b. Engineering Reports
 - c. Construction Drawings
 - d. Construction Specifications
 - e. Maintenance Records
 - f. As-Builts
 - g. Bid Tabulations
5. Access to County's Esri ArcGIS Portal System
6. All necessary data for APMS Update

V. FEE AND COMPENSATION

The scope of work shall be based on a Fixed Lump Sum agreement and **Attachment A** Work Plan Fee Estimate summarizes the labor, subconsultant cost, and expenses. The Consultant will prepare monthly invoicing packages for each task as a percent complete on a monthly basis. See **Attachment A** for Work Plan Fee Estimate.

NPIAS	Airport	Total
Yes	California Redwood Coast - Humboldt County Airport	\$ 110,100
Yes	Garberville Airport	\$ 37,200
Yes	Murray Field	\$ 41,500
Yes	Rohnerville Airport	\$ 55,033
	Total AIP Eligible	\$ 243,833