

STATE OF CALIFORNIA
STANDARD AGREEMENT

Department Of Transportation

STD 213 (rev 9/01)

Division Of Procurement And Contracts (DPAC) A&E Boiler Revision Date 10/05/10

AGREEMENT NUMBER

63A0061

REGISTRATION NUMBER

1. This Agreement is entered into between the State Agency and the Contractor named below:

STATE AGENCY'S NAME

STATE OF CALIFORNIA

DEPARTMENT OF TRANSPORTATION (Hereinafter referred to as "Department" or "Caltrans")

CONSULTANT'S NAME

Hill International, Inc. (Hereinafter referred to as "the Consultant")

2. The term of this Agreement is from 04/07/2011 or upon Caltrans approval, whichever is later, through 09/30/2013.

3. The maximum amount of this Agreement is: \$600,000.00
 Six Hundred Thousand Dollars and No Cents.

4. The parties agree to comply with the terms and conditions of the following exhibits/attachments which are by this reference made a part of the Agreement.

Exhibit A – Scope Of Work And Deliverables	4 Pages
Exhibit B – Budget Detail And Payment Provisions	5 Pages
Exhibit C – General Terms And Conditions 610 (GTC 610)	1 Page
Exhibit D – Special Terms And Conditions	25 Pages
Exhibit E – Additional Provisions	12 Pages
Attachment 1 – Scope Of Work	8 Pages
Attachment A - Airport Manager (AM) listing	2 Pages
Attachment B – Preparation of the Vicinity Map and Airport Layout Drawing-Example	7 Pages
Attachment C - Previous APMS report	41 Pages
Attachment 2 – Cost Proposal	7 Pages
Attachment 3 – Sample Task Order Format	5 Pages
Attachment 4 – Disadvantaged Business Enterprise (DBE) Information / Underutilized DBE (UDBE) Participation (form ADM 0227F)	1 Page

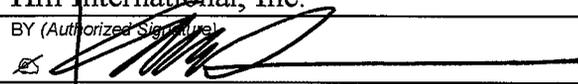
IN WITNESS WHEREOF, this Agreement has been executed by the parties hereto.

CONTRACTOR (herein referred to as "the Consultant")

CONSULTANT'S NAME (if other than an individual, state whether a corporation, partnership, etc.)

Hill International, Inc.

BY (Authorized Signature)



DATE SIGNED (Do not type)

3-29-2011

PRINTED NAME AND TITLE OF PERSON SIGNING

Kenneth R. Baker Senior Vice President

ADDRESS

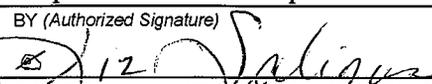
10 Universal City Plaza, Ste. 2000
 Universal City, CA 91608

STATE OF CALIFORNIA

AGENCY NAME

Department of Transportation

BY (Authorized Signature)



DATE SIGNED (Do not type)

4/6/2011

PRINTED NAME AND TITLE OF PERSON SIGNING

Liz Salinas, Branch Chief

ADDRESS

Division of Procurement and Contracts, MS #65
 1727 30th Street, Sacramento, CA 95816

California Department of General Services
 Use Only

Exempt per: PCC 10430(d)

EXHIBIT A
SCOPE OF WORK AND DELIVERABLES

I. SCOPE OF WORK

- A. The work to be performed under this Agreement is described in Attachment 1.
- B. The services shall be performed Statewide.
- C. This Agreement will commence on April 07, 2011 or upon approval by Caltrans, whichever is later and no work shall begin before that time. This Agreement is of no effect unless approved by Caltrans. The Consultant shall not receive payment for work performed prior to approval of the Agreement and before receipt of notice to proceed by the Caltrans Contract Manager. This Agreement shall expire on September 30, 2013. The services shall be provided during working hours, Monday through Friday, except holidays or as indicated by Task Order. The parties may amend this Agreement as permitted by law.
- D. All inquiries during the term of this Agreement will be directed to the project representatives identified below:

THE DEPARTMENT	THE CONSULTANT
Contract Manager: Leanne Provost	Project Manager: Ruth Lehmann
District/Division: D-63 / Division of Aeronautics, MS# 40	Office/Branch:
Address: 1120 N Street	Address: 10 Universal City Plaza, Ste. 2000
Sacramento, CA 95814	Universal City, CA 91608
Phone: 916-654-3775	Phone: 818-753-2322
Fax: 916-653-9531	Fax: 818-753-2310
e-mail: Lee_Provost@dot.ca.gov	e-mail: ruthlehmann@hillintl.com

E. Work Guarantee

Caltrans does not guarantee, either expressly or by implication, that any work or services will be required under this Agreement.

EXHIBIT A
SCOPE OF WORK AND DELIVERABLES

F. Licenses and Permits

1. The Consultant shall obtain at its expense all license(s) and permit(s) required by law for accomplishing any work required in connection with this Agreement.
2. In the event the Consultant fails to keep in effect at all times all required license(s) and permit(s), Caltrans may, in addition to any other remedies it may have, terminate this Agreement upon occurrence of such event.

II. TASK ORDER

- A. Specific projects will be assigned to the Consultant through issuance of Task Orders. See sample Task Order format, Attachment 3.
- B. After a project to be performed under this Agreement is identified by Caltrans, Caltrans will prepare a draft Task Order, less the cost estimate. The draft Task Order will identify the scope of services, expected results, project deliverables, period of performance, project schedule and will designate a Caltrans Project Coordinator. The draft Task Order will be delivered to the Consultant for review. The Consultant shall return the draft Task Order within no more than ten (10) calendar days along with a cost estimate including a written estimate of the number of hours per staff person, any anticipated reimbursable expenses, and total dollar amount. The Consultant agrees that each cost estimate shall be the product of a good faith effort exercise of engineering judgment. After agreement has been reached on the negotiable items, the finalized Task Order shall be signed by both Caltrans and the Consultant. If Caltrans and Consultant are unable to reach agreement, Caltrans may terminate this Agreement in accordance with the provisions of Exhibit D, entitled "Termination."
- C. Task Orders may be negotiated for a Firm Fixed Price or for specific rates of compensation, both of which must be based on the labor and other rates set forth in the Consultant's Cost Proposal, Attachment 2.

EXHIBIT A
SCOPE OF WORK AND DELIVERABLES

- D. A Task Order is of no force or effect until returned to Caltrans and signed by an authorized representative of Caltrans. No expenditures are authorized on a project and work shall not commence until a Task Order for that project has been executed by Caltrans.
- E. The Consultant shall not commence performance of work or services on a Task Order until it has been approved by Caltrans and notification to proceed has been issued by the Caltrans Contract Manager. No payment will be made for any work performed prior to approval or after the period of performance of the Task Order.
- F. If the Consultant fails to satisfactorily complete a deliverable according to the schedule set forth in a Task Order, no payment will be made until the deliverable has been satisfactorily completed.
- G. The period of performance for Task Orders shall be in accordance with dates specified in the Task Order. No Task Order will be written which extends beyond the expiration date of this Agreement.
- H. The total amount payable by Caltrans for an individual Task Order shall not exceed the amount agreed to in the Task Order. Task Orders and/or Task Order Revisions require written approval by the Consultant and Caltrans.
- I. If applicable, when a subsequent agreement for the same or similar scope of work is executed within three (3) months prior to the termination of this Agreement, no additional Task Orders shall be executed under this Agreement upon the effective date of the subsequent agreement.
- J. Task Orders may not be used to amend this Agreement and may not exceed the scope of work under this Agreement.

III. CONSULTANT REPORTS AND/OR MEETINGS

- A. The Consultant shall submit progress reports at least once a month. The report should be sufficiently detailed for the Caltrans Contract Manager to determine if the Consultant is performing to expectations and is on schedule, to provide communication of interim findings and to afford

EXHIBIT A
SCOPE OF WORK AND DELIVERABLES

occasions for airing difficulties or special problems encountered so remedies can be developed. Separate detail shall be provided for each on-going Task Order.

- B. Progress reports shall identify the total number of hours worked by the Consultants' and Subconsultants' personnel by use of the Caltrans Work Breakdown Structure (WBS) level element(s). The WBS is included in the Guide to Project Delivery Workplan Standards, which can be found at <http://www.dot.ca.gov/hq/projmgmt/guidance.htm>.
- C. The Consultant's Project Manager shall meet with the Caltrans Contract Manager as needed to discuss progress on the Agreement.

EXHIBIT B
BUDGET DETAIL AND PAYMENT PROVISIONS

I. FUNDING REQUIREMENTS

- A. It is mutually understood between the parties that this Agreement may have been written before ascertaining the availability of congressional or legislative appropriation of funds for the mutual benefit of both parties in order to avoid program and fiscal delays that would occur if the Agreement were executed after that determination was made.
- B. This Agreement is valid and enforceable only if sufficient funds are made available to Caltrans by the United States Government or the California State Legislature for the purpose of this program. In addition, this Agreement is subject to any additional restrictions, limitations, conditions, or any statute enacted by the Congress or the State Legislature that may affect the provisions, terms, or funding of this Agreement in any manner.
- C. It is mutually agreed that if the Congress or the State Legislature does not appropriate sufficient funds for the program, this Agreement shall be amended to reflect any reduction in funds.
- D. Caltrans has the option to terminate the Agreement under the 30-day termination clause pursuant to Exhibit D, section III.

II. COMPENSATION AND PAYMENT

- A. The Consultant will be reimbursed for hours worked at the hourly rates specified in the Consultant's Cost Proposal (see Attachment 2). The specified hourly rates shall include direct salary costs, employee benefits, overhead, and fee. These rates are not adjustable for the performance period set forth in this Agreement.
- B. In addition, the Consultant will be reimbursed for direct costs, other than salary costs, that are identified in an executed Task Order.
- C. Transportation and subsistence costs to be reimbursed shall be the actual costs incurred, but not to exceed the rates stipulated in the "Caltrans Travel Guide, Consultant/Contractors Travel Policy." See <http://www.dot.ca.gov/hq/asc/travel/ch12.htm>.

EXHIBIT B
BUDGET DETAIL AND PAYMENT PROVISIONS

- D. Progress payments:
1. Progress payments will be made monthly in arrears based on services provided at specific hourly rates and allowable direct cost incurred for Task Orders negotiated with specific rates of compensation. Progress payments for Firm Fixed Price Task Orders will be based on the percentage of work completed.
 2. To determine allowable incurred Subconsultant costs that are eligible for reimbursement, in addition to reimbursement for actual costs that are incurred, Caltrans will allow Subconsultant costs that are treated by the Consultant as accrued due to such costs having been billed to the Consultant and recognized by the Consultant and Caltrans as valid, undisputed, due and payable.
 3. By submitting accrued but unpaid Subconsultant costs for reimbursement, the Consultant agrees that within ten (10) days of receipt of reimbursement, the full amount submitted as a reimbursable accrued Subconsultant cost shall be paid to the Subconsultant.
- E. The Consultant shall not commence performance nor will payment be made for any work performed prior to approval of this Agreement by State and written notification to proceed has been issued by the Caltrans Contract Manager, nor will any payment be made for work performed after the expiration date of this Agreement.
- F. The Consultant will be reimbursed in arrears for services satisfactorily rendered and approved by the Caltrans Contract Manager, as promptly as fiscal procedures will permit upon receipt by the Caltrans Contract Manager of itemized invoices in triplicate. Separate invoices itemizing all costs are required for all work performed under each Task Order.
- G. Invoices shall be submitted showing the Caltrans Work Breakdown Structure (WBS) level element for each billable hour increment and/or detail of work performed on each milestone, on each project as applicable. Task Orders and invoicing shall include, but are not limited to, the Work Breakdown Structure (WBS) elements listed for defined/related services and products. The WBS is included in the Guide

EXHIBIT B
BUDGET DETAIL AND PAYMENT PROVISIONS

to Project Delivery Workplan Standards, which can be found at <http://www.dot.ca.gov/hq/projmgmt/guidance.htm>. Incomplete invoices shall be returned unpaid to the Consultant for correction. Caltrans shall not pay disputed portions of invoices.

- H. The sample invoice format can be found at <http://caltrans-opac.ca.gov/aeinfo.htm>. Invoices shall reference this Agreement number, project title, and Task Order number. Invoices shall be submitted no later than 45 calendar days after completion of each billing period. Any credit, as provided under this Agreement, due Caltrans must be reimbursed by the Consultant prior to the expiration or termination of this Agreement. Invoices shall be mailed to the Caltrans Contract Manager or Consultant Service Unit at the following address:

DEPARTMENT OF TRANSPORTATION
District 63 Division of Aeronautics, MS# 40
Attn: Lee Provost
1120 N Street
Sacramento, CA 95814

- I. The final project invoice shall state the final cost and all credits due Caltrans. The final invoice should be submitted within 60 calendar days after completion of the services.
- J. Payment will be made in accordance with, and within the time specified in, Government Code Chapter 4.5, commencing with Section 927.
- K. The total amount payable by Caltrans, for all Task Orders resulting from this Agreement, shall not exceed \$600,000.00. It is understood and agreed that this total is an estimate, and that the actual amount of work requested by Caltrans may be less. There is no guarantee, either expressed or implied, as to the actual dollar amount that will be authorized under this Agreement through Task Orders. In no event shall Task Orders be issued that will exceed this maximum.
- L. Any written report prepared as a requirement of this Agreement shall contain, in a separate section of such written report, the number and dollar amounts of all agreements and subagreements relating to the

EXHIBIT B
BUDGET DETAIL AND PAYMENT PROVISIONS

preparation of those reports if the combined costs for work by nonemployees of the State exceed \$5,000.00.

- M. Prime Consultant's Indirect Cost Rates (ICR) indicated in Attachment 2, Cost Proposal, are based on 48 CFR, Part 31.
- N. Attachment 2, Cost Proposal, is subject to a Certified Public Accountant (CPA) Indirect Cost (Overhead) Audit Workpaper Review and/or audit. Attachment 2 shall be adjusted by the Consultant and approved by the Caltrans Contract Manager to conform to the Workpaper Review recommendations or audit recommendations. The Consultant agrees that individual terms of cost identified in the audit report shall be incorporated into the Agreement by this reference if directed by Caltrans at its sole discretion. Refusal by the Consultant to incorporate the Workpaper Review recommendations or audit recommendations will be considered a breach of the Agreement terms and cause for termination of the Agreement.
- O. Limitations: Use of the rate(s) contained in this Agreement is subject to any statutory or administrative limitations and is applicable to a given contract only to the extent that funds are available. Acceptance of the rate(s) agreed to herein is predicated upon the following conditions:
 - 1. That no costs other than those incurred by the Consultant or allocated to the Consultant were included in its indirect cost pool as finally accepted and that such costs are legal obligations of the Consultant and allowable under the governing cost principles.
 - 2. That the same costs that have been treated as indirect costs have not been claimed as direct costs.
 - 3. That similar types of costs have been accorded consistent accounting treatment to all clients (state, federal, local government, commercial/private) under similar circumstances, and
 - 4. That the information provided by the Consultant which was used as a basis for acceptance of the rate(s) agreed to herein is not subsequently found to be materially inaccurate.

EXHIBIT B
BUDGET DETAIL AND PAYMENT PROVISIONS

The elements of indirect cost and the type of distribution base(s) used in computing provisional rates are subject to revision when final rates are established. Also, the rates cited in this Agreement are subject to audit.

- P. At the discretion of Caltrans, the indirect rate(s) and related workpapers may be reviewed by Caltrans Division of Audits & Investigations (A&I) to verify the accuracy and CPA's compliance with 48 CFR, Part 31 and related laws and regulations, and to determine if the audit report format is acceptable.
- Q. Any subagreement in excess of \$25,000.00, entered into as a result of this Agreement, shall contain all of the provisions of this clause.

III. COST PRINCIPLES

- A. The Consultant agrees that Title 48 Code of Federal Regulations (CFR), Part 31, Contract Cost Principles and Procedures (48 CFR 31 et seq.), shall be used to determine the allowability of individual terms of cost.
- B. The Consultant also agrees to comply with Federal procedures in accordance with Title 49 CFR, Part 18, Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments (49 CFR 18).
- C. Any costs for which payment has been made to the Consultant that are determined by subsequent audit to be unallowable under 48 CFR 31 or 49 CFR 18 are subject to repayment by the Consultant to Caltrans.
- D. Any subagreement in excess of \$25,000.00, entered into as a result of this Agreement, shall contain all the provisions of this clause.

EXHIBIT C
GENERAL TERMS AND CONDITIONS

NOTE: In this Exhibit C – GTC 610, the General Terms and Conditions are included in this Agreement by reference and made part of this Agreement as if attached hereto. See <http://www.ols.dgs.ca.gov/Standard+Language/default.htm>.

The following language is to be included in lieu of the Standard Indemnification Clauses used in DGS GTC – 610 General Terms and Conditions.

Indemnification

The Consultant agrees to indemnify, defend, and hold harmless Caltrans, its officers, agents, and employees from any and all claims, demands, costs, or liability arising from or connected with the services provided hereunder due to negligent or intentional acts, errors, or omissions of the Consultant. The Consultant will reimburse Caltrans for any expenditure, including reasonable attorney fees, incurred by Caltrans in defending against claims ultimately determined to be due to negligent or intentional acts, errors, or omissions of the Consultant.

EXHIBIT D
SPECIAL TERMS AND CONDITIONS

I. AMENDMENT (CHANGE IN TERMS)

- A. No amendment or variation of the terms of this Agreement shall be valid unless made in writing, signed by the parties, and approved as required. No oral understanding or agreement not incorporated in Agreement is binding on any of the parties.
- B. The Consultant shall only commence work covered by an amendment after the amendment is executed and notification to proceed has been provided by the Caltrans Contract Manager.
- C. There shall be no change in the Consultant's Project Manager or members of the project team, as listed in the cost proposal, which is a part of this Agreement, without prior written approval by the Caltrans Contract Manager. If the Consultant obtains approval from the Caltrans Contract Manager to add or substitute personnel, the Consultant must provide the Personnel Request Form, a copy of the SF330 or resume for the additional or substituted personnel, along with a copy of the certified payroll for that person.

II. DISPUTES

- A. The Consultant shall continue with the responsibilities under this Agreement during any work dispute. Any dispute concerning a question of fact arising under this Agreement that is not disposed of by agreement shall be decided by a committee consisting of the Caltrans Contract Manager and the Caltrans Contract Officer who may consider written or verbal information submitted by the Consultant.
- B. Any dispute not resolved by the committee consisting of the Caltrans Contract Manager and Caltrans Contract Officer may be reviewed by the Consultant Claims Review Committee (CCRC). The CCRC will consist of the Division Chief of Project Delivery (Chairperson), Deputy Director of Administration and the Chief Counsel of Legal Services or their designees. Additional members or their designees may serve on the committee.

EXHIBIT D
SPECIAL TERMS AND CONDITIONS

- C. Not later than 30 days after completion of all work under the Agreement, the Consultant may request review by the CCRC of unresolved claims or disputes. The request for review will be submitted in writing through the Caltrans Contract Officer to the Chairperson, CCRC. A meeting by the CCRC will be scheduled after the Chairperson concurs. After the meeting, the CCRC will make recommendations to the Deputy Director of the functional program area, who will make the final decision for Caltrans.
- D. Neither the pendency of a dispute nor its consideration by the committee will excuse the Consultant from full and timely performance in accordance with the terms of this Agreement.

III. TERMINATION

This section regarding termination is in addition to GTC 610.

- A. Caltrans reserves the right to terminate this Agreement immediately in the event of breach or failure of performance by the Consultant, or upon thirty (30) calendar days written notice to the Consultant if terminated for the convenience of Caltrans.
- B. Caltrans may terminate this Agreement and be relieved of any payments except as provided for under early termination should the Consultant fail to perform the requirements of this Agreement at the time and in the manner herein provided. In the event of such termination, Caltrans may proceed with the work in any manner deemed proper by Caltrans. All costs to Caltrans shall be deducted from any sum due the Consultant under this Agreement and the balance, if any, shall be paid to the Consultant upon demand.

IV. EARLY TERMINATION OF THIS AGREEMENT OR TASK ORDER(S),
OR SUSPENSION OF THIS AGREEMENT

General Conditions

- A. In the event this Agreement is terminated, suspended, or a Task Order is terminated for the convenience of Caltrans, the Consultant shall be paid

EXHIBIT D
SPECIAL TERMS AND CONDITIONS

for the percentage of the work completed, relative to the total work effort called for under this Agreement, and for termination costs. No billable costs will be considered payable under the Agreement during suspension.

- B. Within 30 days of the date the Consultant is notified of the early termination of Task Order(s) issued against this Agreement for the convenience of Caltrans, the Consultant shall prepare and submit to the Caltrans Contract Manager, for approval, two (2) separate supplemental cost proposals:
1. A final revised cost proposal for all project-related costs for the revised termination date, and
 2. A cost proposal specifically addressing the termination settlement costs only.

V. CONSULTANT'S DELIVERABLES UNDER EARLY TERMINATION

The Consultant shall provide all project-related documents and correspondence required as part of the Scope of Work/Deliverables or included in Task Orders. Project-related documents shall be described, listed, and identified as part of the final revised cost proposal. Project-related documents shall include all documents that are in complete and final form and which have been accepted as complete by Caltrans, or documents in draft and/or incomplete form for those deliverables, which are in progress by the Consultant and have not been accepted as complete. All documents must be received and accepted before the settlement cost invoice is paid.

VI. INVOICE SUBMITTAL UNDER EARLY TERMINATION

Separate final invoices for project-related costs and termination settlement costs shall be submitted no later than thirty (30) calendar days after the date the Consultant is notified of acceptance of the final cost proposals by the Caltrans Contract Manager. Invoices shall be submitted in accordance with EXHIBIT B. The invoice for termination settlement costs shall include the following, to the extent they are applicable: lease termination costs for

EXHIBIT D
SPECIAL TERMS AND CONDITIONS

equipment and facilities approved under the terms of this Agreement; equipment salvage costs for equipment valued over \$500.00; rental costs for unexpired leases, less the residual value of the lease; cost of alterations and reasonable restorations required by the lease; settlement expenses, e.g., accounting, legal, clerical, storage, transportation, protection and disposition of property acquired or produced under this Agreement, indirect costs, such as payroll taxes, fringe benefits, occupancy costs, and immediate supervision costs related to wages and salaries, incurred as settlement costs.

VII. TERMINATION ISSUES FOR SUBCONSULTANTS, SUPPLIERS, AND SERVICE PROVIDERS

The Consultant shall notify any Subconsultant and service or supply vendor providing services under this Agreement of the early termination date of this Agreement. Failure to notify any Subconsultant and service or supply vendor shall result in the Consultant being liable for the termination costs incurred by any Subconsultant and service or supply vendor for work performed under this Agreement, except those specifically agreed to in the termination notice to the Consultant.

VIII. COST PRINCIPLES UNDER EARLY TERMINATION

Termination settlement expenses will be reimbursed in accordance with 48 CFR, Federal Acquisition Regulations System, Chapter 1, Part 31. Subpart 31.205-42 (c) dealing with initial costs is not applicable to Architectural and Engineering Agreement terminations.

IX. DISPUTES UNDER EARLY TERMINATION CONDITIONS

Disputes under early termination conditions shall be resolved in accordance with this Exhibit.

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SPECIAL TERMS AND CONDITIONS

X. CONSULTANT CLAIMS AGAINST THIS AGREEMENT OR TASK ORDER(S) UNDER EARLY TERMINATION

The Consultant agrees to release Caltrans from any and all further claims for services performed arising out of this Agreement or its early termination, upon acceptance by the Consultant of payment in the total amount agreed upon as full and final payment of its costs from performance and early termination of this Agreement or Task Order(s).

XI. NON-DISCRIMINATION

This section regarding non-discrimination is in addition to GTC 610.

- A. During the performance of this Agreement, the Consultant and its Subconsultants shall not unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, physical disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave, and denial of pregnancy disability leave. Consultants and Subconsultants shall insure that the evaluation and treatment of their employees and applicants for employment are free of such discrimination and harassment. The Consultant and Subconsultants shall comply with the provision of the Fair Employment and Housing Act (Government Code, Section 12900 et seq.) and the applicable regulations promulgated thereunder (California Code of Regulations, Title 2, Section 7285.0 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code, Section 12990 (a-f), set forth in Chapter 5 of Division 4 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. The Consultant and its Subconsultants shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement.
- B. Appendix A, relative to nondiscrimination on federally assisted projects, is attached hereto and made a part of this Agreement. (See the last three pages of this Exhibit D.)

EXHIBIT D
SPECIAL TERMS AND CONDITIONS

- C. The Consultant shall comply with the nondiscrimination program requirements of Title VI of the Civil Rights Act of 1964. Accordingly, 49 CFR Part 21, and 23 CFR Part 200 is applicable to this Agreement by reference.
- D. The Consultant shall include the nondiscrimination and compliance provisions of this clause in all subagreements to perform work under this Agreement.

XII. RETENTION OF RECORD/AUDITS

- A. For the purpose of determining compliance with Public Contract Code Section 10115, et seq. and Title 21, California Code of Regulations, Chapter 21, Section 2500 et seq., when applicable, and other matters connected with the performance of the Agreement pursuant to Government Code Section 8546.7, the Consultant, Subconsultants, and Caltrans shall maintain all books, documents, papers, accounting records, and other evidence pertaining to the performance of the Agreement, including but not limited to, the costs of administering the Agreement. All parties shall make such materials available at their respective offices at all reasonable times during the Agreement period and for three (3) years from the date of final payment under the Agreement. Caltrans, the State Auditor, FHWA, or any duly authorized representative of the Federal government having jurisdiction under Federal laws or regulations (including the basis of Federal funding in whole or in part) shall have access to any books, records, and documents of the Consultant that are pertinent to the Agreement for audits, examinations, excerpts, and transactions, and copies thereof shall be furnished if requested.
- B. Any subagreement in excess of \$25,000.00, entered into as a result of this Agreement, shall contain all the provisions of this clause.

XIII. SUBCONTRACTING

- A. Nothing contained in this Agreement or otherwise, shall create any contractual relation between the State and any subconsultants, and no

EXHIBIT D
SPECIAL TERMS AND CONDITIONS

subagreement shall relieve the Consultant of its responsibilities and obligations hereunder. The Consultant agrees to be as fully responsible to the State for the acts and omissions of its subconsultants and of persons either directly or indirectly employed by any of them as it is for the acts and omissions of persons directly employed by the Consultant. The Consultant's obligation to pay its subconsultants is an independent obligation from the State's obligation to make payments to the Consultant.

- B. The Consultant shall perform the work contemplated with resources available within its own organization and no portion of the work shall be subcontracted without written authorization by the Caltrans Contract Manager, except that which is expressly identified in the Consultant's Cost Proposal.
- C. Any subagreement in excess of \$25,000, entered into as a result of this Agreement, shall contain all the provisions stipulated in this Agreement to be applicable to subconsultants unless otherwise noted.
- D. Contractor shall pay its subconsultants within ten (10) calendar days from receipt of each payment made to the Consultant by the State.
- E. Any substitution of subconsultants must be approved in writing by the Caltrans Contract Manager in advance of assigning work to a substitute subconsultant.

XIV. EQUIPMENT PURCHASE

- A. Prior authorization in writing by the Caltrans Contract Manager shall be required before the Consultant enters into any non-budgeted purchase order or subagreement exceeding \$500.00 for supplies, equipment, or Consultant services. The Consultant shall provide an evaluation of the necessity or desirability of incurring such costs.
- B. For purchase of any item, service or consulting work not covered in the Consultant's Cost Proposal and exceeding \$500.00, with prior authorization by the Contract Manager, three (3) competitive quotations

EXHIBIT D
SPECIAL TERMS AND CONDITIONS

must be submitted with the request or the absence of bidding must be adequately justified.

- C. The Consultant shall maintain an inventory record for each piece of non-expendable equipment purchased or built with funds provided under the terms of this Agreement. The inventory record of each piece of such equipment shall include the date acquired, total cost, serial number, model identification (on purchased equipment), and any other information or description necessary to identify said equipment. Non-expendable equipment so inventoried are those items of equipment that have a normal life expectancy of one (1) year or more and an approximate unit price of \$5,000.00 or more. In addition, theft-sensitive items of equipment costing less than \$5,000.00 shall be inventoried. A copy of the inventory record must be submitted to Caltrans on request by Caltrans.
- D. At the conclusion of the Agreement or if the Agreement is terminated, the Consultant may either keep the equipment and credit the State in an amount equal to its fair market value or sell such equipment at the best price obtainable, at a public or private sale, in accordance with established State procedures, and credit Caltrans in an amount equal to the sales price. If the Consultant elects to keep the equipment, fair market value shall be determined, at the Consultant's expense, on the basis of a competent, independent appraisal of such equipment. Appraisals shall be obtained from an appraiser mutually agreeable to Caltrans and the Consultant. If it is determined to sell the equipment, the terms and conditions of such sale must be approved in advance by Caltrans.
- E. 49 CFR, Part 18 requires a credit to Federal funds when participating equipment with a fair market value greater than \$5,000.00 is credited to the project.
- F. Any subagreement entered into as a result of this Agreement shall contain all the provisions of this clause.

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XV. INSPECTION OF WORK

The Consultant and any Subconsultants shall permit Caltrans and the FHWA to review and inspect the project activities at all reasonable times during the performance period of this Agreement including review and inspection on a daily basis.

XVI. SAFETY

- A. The Consultant shall comply with OSHA regulations applicable to the Consultant regarding necessary safety equipment or procedures. The Consultant shall comply with safety instructions issued by the District Safety Officer and other State representatives. The Consultant's personnel shall wear white hard hats and orange safety vests at all times while working on the construction project site.
- B. Pursuant to the authority contained in Section 591 of the Vehicle Code, Caltrans has determined that within such areas as are within the limits of the project and are open to public traffic, the Consultant shall comply with all of the requirements set forth in Divisions 11, 12, 13, 14, and 15 of the Vehicle Code. The Consultant shall take all reasonably necessary precautions for safe operation of its vehicles and the protection of the traveling public from injury and damage from such vehicles.
- C. The Consultant or Subconsultant(s) must have a Division of Occupational Safety and Health (CAL-OSHA) permit(s) as outlined in California Labor Code Sections 6500 and 6705, prior to the initiation of any practice, work, method, operation, or process related to the construction or excavation of trenches which are five feet or deeper.
- D. Any subagreement, entered into as a result of this Agreement, shall contain all of the provisions of this clause.

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XVII. INSURANCE

A. The Consultant shall furnish to Caltrans Certificates of Insurance for the minimum coverage set forth below. The Consultant shall be fully responsible for all policy deductibles and any self-insured retention. All insurance shall be with an insurance company with an A.M. Best's Financial Strength Rating of A- or better with a Financial Size Category of VI or better.

B. Required Coverages and Limits:

1. Workers Compensation (statutory) and Employers Liability Insurance:

\$1,000,000 for bodily injury for each accident

\$1,000,000 policy limit for bodily injury by disease

\$1,000,000 for each employee for bodily injury by disease

If there is an exposure of injury to the Consultant's employees under the U.S. Longshoremen's and Harbor Workers' Compensation Act, the Jones Act, or under laws, regulations, or statutes applicable to maritime employees, coverage shall be included for such injuries or claims.

If work is performed on State owned or controlled property the policy shall contain a waiver of subrogation in favor of the State. The waiver of subrogation endorsement shall be provided in addition to the certificate of insurance.

2. Commercial General Liability Insurance with limits no less than:

\$1,000,000 per occurrence

\$2,000,000 products completed operations aggregate

\$2,000,000 general aggregate

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The policy's general aggregate shall apply separately to the consultant's work under this Agreement by evidencing a per project aggregate endorsement separately attached to the certificate of insurance.

3. Automobile liability, including owned, non-owned and hired autos, with limits not less than \$1,000,000 combined single limit per accident.
4. A \$1,000,000 umbrella or excess liability shall include premises/operations liability, products/completed operations liability, and auto liability coverage. The umbrella or excess policy shall contain a clause stating that it takes effect (drops down) in the event the primary limits are impaired or exhausted.
5. Professional Liability insurance with limits no less than:

\$1,000,000 per claim

\$2,000,000 in the aggregate

The policy's retroactive date must be shown on the certificate and must be before this contract is executed or before the beginning of contract work.

Additionally, the consultant shall maintain, or make a good faith effort to maintain, the Professional Liability insurance for a period of three (3) years after its performance under this Agreement.

- C. The insurance above shall be maintained in effect at all times during the term of this Agreement. If the insurance expires during the term of the Agreement, a new certificate must be submitted to the Caltrans Contract Manager not less than ten (10) days prior to the expiration of insurance. Failure to maintain the required coverage shall be sufficient grounds for Caltrans to terminate this Agreement for cause, in addition to any other remedies Caltrans may have available.
- D. The Certificates of Insurance shall provide that the insurer will not cancel the insured's coverage without 30 days prior written notice to Caltrans.

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- E. The State of California and Caltrans including its officers, directors, agents, employees, and servants shall be added as an additional insured for automobile liability, general liability, and excess/umbrella liability arising out of or connected with work performed by or on behalf of Consultant. This endorsement must be separately attached to the certificate of insurance.
- F. Caltrans will not be responsible for any premiums or assessments on the policy.
- G. For Agreements with hazardous activities, new certificates of insurance are subject to the approval of DGS, and the Consultant agrees that no work or services shall be performed prior to such approval.
- H. The Consultant shall require all subconsultants to carry insurance based on the cost of the subcontract and the potential risk to Caltrans of the subcontracted work. Notwithstanding any coverage requirements for subconsultants, the Consultant shall be responsible for ensuring sufficient insurance coverage for all work performed under the Agreement, including the work of subconsultants.

XVIII. OWNERSHIP OF PROPRIETARY PROPERTY

For the purposes of this section (Ownership of Proprietary Property) the following definitions shall apply:

Work: As delineated in Attachment 1 (Scope of Work) of the Agreement.

Work Product: As defined as Deliverable in Attachment 1 (Scope of Work) of the Agreement, including but not limited to, all Work and Deliverables conceived or made, or made hereafter conceived or made, either solely or jointly with others during the term of this Agreement and during a period of six (6) months after the termination thereof, which relates to the Work commissioned or performed under this Agreement.

Inventions: Any idea, design, concept, technique, invention, discovery, improvement or development regardless of patentability made solely by the Consultant or jointly with the Consultant's Subcontractor and/or the

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Consultant's Subcontractor's employee's with one or more employees of the Department of Transportation (hereinafter referred to as "Caltrans"), during the term of this Agreement and in performance of any Work under this Agreement, provided that either the conception or reduction to practice thereof occurs during the term of this Agreement and in performance of Work issued under this Agreement.

A. Ownership of Work Product and Rights

1. Ownership of Work Product

All Work Product derived by the Work performed by the Consultant, its employees or by any of the Consultant's Subcontractor's employees under this Agreement, shall be owned by Caltrans and shall be considered works made for hire by the Consultant's Subcontractor for Caltrans. Caltrans shall own all United States and international copyrights in the Work Product.

As such, all Work Product shall contain, in a conspicuous place, a copyright designation consisting of a "c" in a circle followed by the four-digit year in which the Work Product was produced, followed by the words "California Department of Transportation." For example, a Work Product created in the year 2003 would contain the copyright designation © 2003 California Department of Transportation.

2. Vesting of Copyright Rights

Consultant, its employees or any of Consultant's Subcontractor's employees agrees to perpetually assign, and upon creation of each Work Product automatically assigns, to Caltrans, its successors and assigns, ownership of all United States and international copyrights in each and every Work Product, insofar as any such Work Product, by operation of law, may not be considered work made for hire by the Consultant's Subcontractor from Caltrans. From time to time upon Caltrans' request, the Consultant's Subcontractor and/or its employees, shall confirm such assignments by execution and delivery of such assignments, confirmations or assignment, or other written instruments as Caltrans may request. Caltrans, its successors and assigns, shall have the right to obtain and hold in its or their own

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name(s) all copyright registrations and other evidence of rights that may be available for Work Product. Consultant hereby agrees to waive all moral rights relating to identification of authorship restriction or limitation on use, or subsequent modifications of the Work.

B. Inventions

1. Vesting of Patent Rights

The Consultant, its employees and any Consultant's Subcontractor hereby agrees to assign to Caltrans, its successors, and assigns, all Inventions, together with the right to seek protection by obtaining patent rights therefore and to claim all rights or priority there under, and the same shall become and remain Caltrans' property regardless of whether such protection is sought. The Consultant, its employees and Consultant's Subcontractor shall promptly make a complete written disclosure to Caltrans of each Invention not otherwise clearly disclosed to Caltrans in the pertinent Work Product, specifically pointing out features or concepts that the Consultant, its employees and Consultant's Subcontractor believes to be new or different. The Consultant, its employees and Consultant's Subcontractor shall, upon Caltrans' request and at Caltrans' expense, cause patent applications to be filed thereon, through solicitors designated by Caltrans, and shall sign all such applications over to Caltrans, its successors, and assigns. The Consultant, its employees and Consultant's Subcontractor shall give Caltrans and its solicitors all reasonable assistance in connection with the preparation and prosecution of any such patent applications and shall cause to be executed all such assignments or other instruments or documents as Caltrans may consider necessary or appropriate to carry out the intent on this Agreement.

2. Agency

In the event that Caltrans is unable for any reason whatsoever to secure the Consultant's, its employees' and/or Consultant's Subcontractor's signature to any lawful or necessary document required or desirable to apply for or prosecute any United States

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application (including renewals or divisions thereof), Consultant, its employees and Consultant's Subcontractor hereby irrevocably designates and appoints Caltrans and its duly authorized officers and agents, as its agent and attorney-in-fact, to act for and on Consultant, its employees and Consultant's Subcontractor's behalf and stead, to execute and file such applications and to do all other lawfully permitted acts to further the prosecution and issuance of any copyrights, trademarks or patents thereon with the same legal force and effect as if executed by Consultant, its employees and/or Consultant's Subcontractor. Caltrans shall have no obligations to file any copyright, trademark or patent applications.

3. Avoidance of Infringement

In performing services under this Agreement, Consultant and its employees agree to avoid designing or developing any items that infringe one or more patents or other intellectual property rights of any third party. If Consultant or its employees becomes aware of any such possible infringement in the course of performing any Work under this Agreement, Consultant or its employees shall immediately notify Caltrans in writing.

C. Additional Provisions

Subcontractors

Consultant shall affirmatively bind by contract any of its subcontractors or service vendors (hereinafter "Consultant's Subcontractor") providing services under this Agreement to conform to the provisions of Exhibit D, section XIX. Consultant's Subcontractor shall then provide the signed contract to the Consultant, who shall provide it to the Caltrans Contract Manager prior to the commencement of any work. In performing services under this Agreement, Consultant's Subcontractor agrees to avoid designing or developing any items that infringe one or more patents or other intellectual property rights of any third party. If Consultant's Subcontractor becomes aware of any such possible infringement in the course of performing any Work under this Agreement, Consultant's Subcontractor shall immediately notify the

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Consultant in writing, Consultant will then immediately notify Caltrans in writing.

XIX. OWNERSHIP OF DATA

- A. Upon completion of all work under this Agreement, all intellectual property rights, ownership and title to all reports, documents, plans, specifications, and estimates produced as part of this Agreement will automatically be vested in Caltrans and no further agreement will be necessary to transfer ownership to Caltrans. The Consultant shall furnish Caltrans all necessary copies of data needed to complete the review and approval process.
- B. It is understood and agreed that all calculations, drawings and specifications, whether in hard copy or machine readable form, are intended for one-time use in the construction of the project for which this Agreement has been entered into.
- C. The Consultant is not liable for claims, liabilities or losses arising out of, or connected with, the modification or misuse by Caltrans of the machine readable information and data provided by the Consultant under this Agreement; further, the Consultant is not liable for claims, liabilities or losses arising out of, or connected with, any use by Caltrans of the project documentation on other projects, for additions to this project, or for the completion of this project by others, excepting only such use as may be authorized, in writing, by the Consultant.
- D. Any subagreement in excess of \$25,000.00, entered into as a result of this Agreement, shall contain all of the provisions of this clause.

XX. CLAIMS FILED BY CALTRANS CONSTRUCTION CONTRACTOR

- A. If claims are filed by the Caltrans construction contractor relating to work performed by the Consultant's personnel and additional information or assistance from the Consultant's personnel is required in order to evaluate or defend against such claims, the Consultant agrees to make its personnel available for consultation with Caltrans construction

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contract administration and legal staff and for testimony, if necessary, at depositions and at trial or arbitration proceedings.

- B. The Consultant's personnel that Caltrans considers essential to assist in defending against construction contractor claims will be made available on reasonable notice from Caltrans. Consultation or testimony will be reimbursed at the same rates, including travel costs, that are being paid for the Consultant's personnel services under this Agreement.
- C. Services of the Consultant's personnel in connection with Caltrans' construction contract claims will be performed pursuant to a written supplement, if necessary, extending the termination date of this Agreement in order to finally resolve the claims.
- D. Any subagreement in excess of \$25,000.00, entered into as a result of this Agreement, shall contain all of the provisions of this clause.

XXI. CONFIDENTIALITY OF DATA

- A. All financial, statistical, personal, technical, or other data and information relative to Caltrans' operations, which is designated confidential by Caltrans and made available to the Consultant in order to carry out this Agreement, shall be protected by the Consultant from unauthorized use and disclosure.
- B. Permission to disclose information on one occasion or public hearing held by Caltrans relating to this Agreement shall not authorize the Consultant to further disclose such information or disseminate the same on any other occasion.
- C. The Consultant shall not comment publicly to the press or any other media regarding this Agreement or Caltrans' actions on the same, except to Caltrans staff, Consultant's own personnel involved in the performance of this Agreement, at public hearings, or in response to questions from a Legislative committee.
- D. The Consultant shall not issue any news release or public relations item of any nature whatsoever regarding work performed or to be performed

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under this Agreement without prior review of the contents thereof by Caltrans and receipt of Caltrans' written permission.

- E. All information related to the construction estimate is confidential and shall not be disclosed by the Consultant to any entity, other than Caltrans.
- F. Any subagreement, entered into as a result of this Agreement, shall contain all of the provisions of this clause.

XXII. EVALUATION OF CONSULTANT

The Consultant's performance will be evaluated by Caltrans. A copy of the evaluation will be sent to the Consultant for comments. The evaluation, together with the comments, shall be retained by Caltrans.

XXIII. STATEMENT OF COMPLIANCE

The Consultant's signature affixed herein and dated shall constitute a certification under penalty of perjury under the laws of the State of California that the Consultant has, unless exempt, complied with the nondiscrimination program requirements of Government Code Section 12990 and Title 2, California Code of Regulations, Section 8103.

XXIV. DEBARMENT AND SUSPENSION CERTIFICATION

- A. The Consultant's signature affixed herein shall constitute a certification under penalty of perjury under the laws of the State of California, that the Consultant or any person associated therewith in the capacity of owner, partner, director, officer or manager:
 - 1. Is not currently under suspension, debarment, voluntary exclusion, or determination of ineligibility by any federal agency;
 - 2. Has not been suspended, debarred, voluntarily excluded, or determined ineligible by any federal agency within the past three (3) years;

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3. Does not have a proposed debarment pending; and
 4. Has not been indicted, convicted, or had a civil judgment rendered against it by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past three (3) years.
- B. Any exceptions to this certification must be disclosed to Caltrans. Exceptions will not necessarily result in denial of recommendation for award, but will be considered in determining bidder responsibility. Disclosures must indicate the party to whom the exceptions apply, the initiating agency, and the dates of agency action.

XXV. CONFLICT OF INTEREST

- A. During the term of this Agreement, the Consultant shall disclose any financial, business, or other relationship with Caltrans or the California Transportation Commission that may have an impact upon the outcome of this Agreement or any ensuing Caltrans construction project. The Consultant shall also list current clients who may have a financial interest in the outcome of this Agreement or any ensuing Caltrans construction project which will follow.
- B. The Consultant hereby certifies that it does not now have nor shall it acquire any financial or business interest that would conflict with the performance of services under this Agreement.
- C. Any subagreement in excess of \$25,000.00, entered into as a result of this Agreement, shall contain all of the provisions of this clause.

XXVI. REBATES, KICKBACKS OR OTHER UNLAWFUL CONSIDERATION

The Consultant warrants that this Agreement was not obtained or secured through rebates, kickbacks or other unlawful consideration either promised or paid to any state agency employee. For breach or violation of this warranty, Caltrans shall have the right, in its discretion, to terminate this Agreement without liability, to pay only for the value of the work actually performed, or to deduct from this Agreement price or otherwise recover the full amount of such rebate, kickback or other unlawful consideration.

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XXVII. PROHIBITION OF EXPENDING STATE OR FEDERAL FUNDS FOR LOBBYING

- A. The Consultant certifies, to the best of his or her knowledge and belief, that:
1. No State or Federal appropriated funds have been paid or will be paid, by or on behalf of the Consultant, to any person for influencing or attempting to influence an officer or employee of any State or Federal agency, a Member of the State Legislature or United States Congress, an officer or employee of the Legislature or Congress, or any employee of a Member of the Legislature or Congress in connection with the awarding of any State or Federal agreement, the making of any State or Federal grant, the making of any State or Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any State or Federal agreement, grant, loan, or cooperative agreement.
 2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with this Federal Agreement, grant, loan, or cooperative agreement, the Consultant shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- B. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000.00 and not more than \$100,000.00 for each such failure.
- C. The Consultant also agrees by signing this document that he or she shall require that the language of this certification be included in all lower tier subagreements, which exceed \$100,000.00, and that all such subrecipients shall certify and disclose accordingly.

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XXVIII. Consultant Code of Business Ethics and Conduct (Dec. 2007)

A. Definition

United States, as used in this clause, means the 50 States, the District of Columbia, and outlying areas.

B. Code of Business Ethics and Conduct

1. Within 30 days after contract award, the Consultant shall:
 - a. Have a written code of business ethics and conduct; and
 - b. Provide a copy of the code to each employee engaged in performance of the contract.
2. The Consultant shall promote compliance with its code of business ethics and conduct.

C. Awareness Program and Internal Control System for Other Than Small Businesses

This paragraph C does not apply if the Consultant has represented itself as a small business concern pursuant to the award of this contract. The Consultant shall establish within 90 days after contract award:

1. An ongoing business ethics and business conduct awareness program; and
2. An internal control system.
 - a. The Consultant's internal control system shall:
 - (1) Facilitate timely discovery of improper conduct in connection with Government contracts; and
 - (2) Ensure corrective measures are promptly instituted and carried out.
 - b. For example, the Consultant's internal control system should provide for:
 - (1) Periodic reviews of company business practices, procedures, policies, and internal controls for compliance with the

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Consultant's code of business ethics and conduct and the special requirements of Government contracting.

- (2) An internal reporting mechanism, such as a hotline, by which employees may report suspected instances of improper conduct, and instructions that encourage employees to make such reports;
- (3) Internal and/or external audits, as appropriate; and
- (4) Disciplinary action for improper conduct.

D. Subcontracts

The Consultant shall include the substance of this clause, including this paragraph 4, in subcontracts, except when the subcontract:

1. Is for the acquisition of a commercial item; or
2. Is performed entirely outside the United States.

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STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

APPENDIX A

I. COMPLIANCE WITH REGULATIONS

The Consultant shall comply with regulations relative to Title VI (nondiscrimination in federally-assisted programs of the Department of Transportation – Title 49 Code of Federal Regulations Part 21 – Effectuation of Title VI of the 1964 Civil Rights Act). Title VI provides that the recipients of federal assistance will implement and maintain a policy of nondiscrimination in which no person in the state of California shall, on the basis of race, color, national origin, religion, sex, age, disability, be excluded from participation in, denied the benefits of or subject to discrimination under any program or activity by the recipients of federal assistance or their assignees and successors in interest.

II. NON-DISCRIMINATION

The Consultant, with regard to the work performed by it during the Agreement shall act in accordance with Title VI. Specifically, the Consultant shall not discriminate on the basis of race, color, national origin, religion, sex, age, or disability in the selection and retention of Subconsultants, including procurement of materials and leases of equipment. The Consultant shall not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the U.S. DOT's Regulations, including employment practices when the Agreement covers a program whose goal is employment.

III. SOLICITATIONS FOR SUBAGREEMENTS, INCLUDING
PROCUREMENTS OF MATERIALS AND EQUIPMENT

In all solicitations, either by competitive bidding or negotiation made by the Consultant for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential Subconsultant or supplier shall be notified by the Consultant of the

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Consultant's obligations under this Agreement and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

IV. INFORMATION AND REPORTS

The Consultant shall provide all information and reports required by the Regulations, or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and facilities as may be determined by the State Department of Transportation or any duly authorized representative of the Federal Government to be pertinent to ascertain compliance with such regulations or directives. Where any information required of a Consultant is in the exclusive possession of another who fails or refuses to furnish this information, the Consultant shall so certify to the State Department of Transportation, or any duly authorized Federal Agency as appropriate, and shall set forth what efforts it has made to obtain the information.

V. SANCTIONS FOR NONCOMPLIANCE

In the event of the Consultant's noncompliance with the nondiscrimination provisions of this Agreement, the State Department of Transportation shall impose such Agreement sanctions as it or any Federal funding agency may determine to be appropriate, including, but not limited to:

- A. Withholding of payments to the Consultant under the Agreement until the Consultant complies, and/or
- B. Cancellation, termination or suspension of the Agreement, in whole or in part.

VI. INCORPORATION OF PROVISIONS

The Consultant shall include the provisions of paragraphs (1) through (6) in every subagreement, including procurements of materials and leases of equipment, unless exempt by the Regulations or directives issued pursuant thereto. The Consultant will take such action with respect to any Subconsultant procurement as the State Department of Transportation or any

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Federal funding agency may direct as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that in the event a Consultant becomes involved in, or is threatened with, litigation with a Subconsultant or supplier as a result of such direction, the Consultant may request the State Department of Transportation to enter into such litigation to protect the interest of the State, and, in addition, the Consultant may request the United States to enter into such litigation to protect the interests of the United States.

FM 94 1984M

EXHIBIT E
ADDITIONAL PROVISIONS

- I. DISADVANTAGED BUSINESS ENTERPRISE (DBE) PROGRAM PARTICIPATION WITHOUT GOALS
- A. This Agreement is subject to Title 49, Code of Federal Regulations, Part 26 (49 CFR 26) entitled “Participation by Disadvantaged Business Enterprises in Department of Transportation Financial Assistance Programs,” in the award and administration of federally assisted Agreements. The regulations in their entirety are incorporated by this reference and made part of this Agreement as if attached hereto.
 - B. There is no specific contract goal for DBE participation in this Agreement. However, if the solicitation specified a required contract goal for Underutilized DBE (UDBE) participation, skip to section II below.
 - C. It is the policy of Caltrans that DBEs, as defined in 49 CFR 26, shall be encouraged to participate in the performance of Agreements financed in whole or in part with federal funds to assist the State in meeting its federally mandated overall annual DBE goal. Consultant shall ensure that DBEs have an opportunity to participate in the performance of this Agreement and shall take all necessary and reasonable steps, as set forth in 49 CFR 26, for this assurance. Consultant shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of subcontracts. Failure to carry out the requirements of this paragraph shall constitute a breach of Agreement and may result in termination of this Agreement or other remedies Caltrans may deem appropriate.
 - D. In order to ascertain whether or not the overall annual DBE goal is achieved, Caltrans tracks DBE participation on all federal-aid contracts. *The Disadvantaged Business Enterprise (DBE) Information / Underutilized DBE (UDBE) Participation* (form ADM 0227F) is attached as Attachment 4 and incorporated as part of this Agreement.
 - E. Consultant shall notify the Caltrans Contract Manager, in writing, of any changes to its anticipated DBE participation. This notice should be provided prior to the commencement of that portion of the work.

EXHIBIT E
ADDITIONAL PROVISIONS

F. Any subcontract entered into between the Consultant and Subconsultant(s) as a result of this Agreement shall contain all of the provisions of this section.

II. DBE INFORMATION AND CONTRACT GOAL REQUIREMENT FOR UDBE PARTICIPATION

A. This Agreement is subject to Title 49, Code of Federal Regulations, Part 26 (49 CFR 26), entitled "Participation by Disadvantaged Business Enterprises (DBEs) in Department of Transportation Financial Assistance Programs," in the award and administration of federally assisted Agreements. The regulations in their entirety are incorporated by reference and made part of this Agreement as if attached hereto.

B. A UDBE is a firm that meets the definition of a DBE as specified in 49 CFR 26 that is also one of the following groups: African Americans, Asian-Pacific Americans, Native Americans, or Women. Only the participation of UDBEs will count toward any contract goal.

C. The contract goal for UDBE participation for this Agreement is 21%. Participation by DBE prime and Subconsultants shall be in accordance with the information contained in the Disadvantaged Business Enterprise (DBE) Information / Underutilized DBE (UDBE) Participation (form ADM 0227F) attached hereto and incorporated as part of this Agreement.

D. Non-compliance by Consultant or Subconsultant(s) with the requirements of the regulations is a material breach of this Agreement and may result in termination of the Agreement or other such appropriate remedy for a breach of this Agreement, as Caltrans deems appropriate.

E. Consultant or subconsultant shall not discriminate on the basis of race color, national origin or sex in the performance of this Agreement. Each subcontract signed by and between Consultant and Subconsultant(s) in the performance of this Agreement must include this assurance.

EXHIBIT E
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III. SUBCONSULTANTS

- A. Consultant shall perform the work contemplated with resources available within its own organization and no portion of the work shall be subcontracted without written authorization by the Caltrans Contract Manager.
- B. Any subcontract in excess of \$25,000, entered into as a result of this Agreement shall contain all the provisions stipulated in this Agreement to be applicable to subconsultants.
- C. Any substitution of Subconsultant(s) must be approved in writing by the Caltrans Contract Manager in advance of assigning work to a substitute Subconsultant(s).
- D. Nothing contained in this Agreement or otherwise shall create any contractual relation between the State and any Subconsultant(s), and no subcontract shall relieve Consultant of its responsibilities and obligations hereunder. Consultant agrees to be as fully responsible to the State for the acts and omissions of its Subconsultant(s) and of persons either directly or indirectly employed by any of them as it is for the acts and omissions of persons directly employed by Consultant. Consultant's obligation to pay its Subconsultant(s) is an independent obligation from the State's obligation to make payments to Consultant. As a result, the State shall have no obligation to pay or to enforce the payment of any moneys to any subconsultant.

IV. PERFORMANCE OF DBE CONSULTANTS AND OTHER DBE
SUBCONSULTANTS/SUPPLIERS

- A. A DBE performs a Commercially Useful Function (CUF) when it is responsible for execution of the work of the Agreement and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a CUF, the DBE must also be responsible for materials and supplies used on the Agreement, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself. To determine whether a DBE is performing a CUF, evaluate the amount of work

EXHIBIT E
ADDITIONAL PROVISIONS

subcontracted, industry practices, whether the amount the firm is to be paid under the Agreement is commensurate with the work it is actually performing, and other relevant factors.

- B. A DBE does not perform a CUF if its role is limited to that of an extra participant in a transaction, Agreement, or project through which funds are passed in order to obtain the appearance of DBE participation. In determining whether a DBE is such an extra participant, examine similar transactions, particularly those in which DBEs do not participate.
- C. If a DBE does not perform or exercise responsibility for at least thirty percent (30%) of the total cost of its Agreement with its own work force, or the DBE subcontracts a greater portion of the work of the Agreement than would be expected on the basis of normal industry practice for the type of work involved, presume that it is not performing a CUF.
- D. DBE Subconsultants shall perform the work and supply the materials that they have listed in their response to the Agreement award requirements specified in the form ADM 0227F, attached, unless Consultant has received prior written authorization to perform the work with other forces or to obtain the materials from other sources as set forth in the section VIII below entitled "DBE/UDBE Substitution."
- E. Consultant shall not be entitled to any payment for such work or material unless it is performed or supplied by the listed DBE or by other forces (including those of Consultant) pursuant to prior written authorization of the Caltrans Contract Manager.

V. EXCLUSION OF RETENTION

- A. In conformance with 49 CFR 26.29 (b) (1), the retention of proceeds required by Public Contract Code (PCC), Section 10261 shall not apply.
- B. In conformance with Public Contract Code (PCC) Section 7200 (b), in subcontracts between Consultant and a Subconsultant and in subcontracts between a Subconsultant and any Subconsultant thereunder, retention proceeds shall not be withheld, and the exceptions provided in PCC Section 7200 (c), shall not apply. At the option of Consultant,

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Subconsultant(s) may be required to furnish payment and performance bonds issued by an admitted surety insurer.

- C. Any subcontract entered into as a result of this Agreement shall contain all of the provisions of this section.

VI. PAYMENT TO DBE AND NON-DBE SUBCONSULTANT(S)

- A. Consultant shall pay its DBE Subconsultant(s) and non-DBE Subconsultant(s) within ten (10) calendar days from receipt of each payment made to Consultant by the State.
- B. Prior to the fifteenth of each month, Consultant shall submit documentation to the Caltrans Contract Manager showing the amount paid to DBE trucking companies listed in Consultant's DBE information. This monthly documentation shall indicate the portion of the revenue paid to DBE trucking companies, which is claimed toward DBE participation. Consultant shall also obtain and submit documentation to the Caltrans Contract Manager showing the amount paid by DBE trucking companies to all firms, including owner-operators, for the leasing of trucks. The DBE who leases trucks from a non-DBE is entitled to credit only for the fee or commission it receives as a result of the lease arrangement. The records must confirm that amount of credit claimed toward DBE participation conforms to the requirements of section VIII below entitled, "DBE/UDBE Substitutions."
- C. Consultant shall also submit to the Caltrans Contract Manager documentation showing the truck number, name of owner, California Highway Patrol CA number and if applicable, the DBE certification number of the truck owner for all trucks used during that month for which DBE participation will be claimed. This documentation shall be submitted on the Monthly DBE Trucking Verification form provided to Consultant by the Caltrans Contract Manager.
- D. Consultant shall return all moneys withheld in retention from a Subconsultant within thirty (30) days after receiving payment for work satisfactorily completed, even if other Agreement work is not completed and has not been accepted in conformance with the terms of the

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Agreement. This requirement shall not be construed to limit or impair any contractual, administrative, or judicial remedies otherwise available to Consultant or Subconsultant in the event of a dispute involving late payment or non-payment to Consultant or deficient subcontract performance or noncompliance by a Subconsultant.

VII. DBE RECORDS

- A. Consultant shall maintain records of all subcontracts entered into with certified DBE Subconsultant(s) and records of materials purchased from certified DBE supplier(s). The records shall show the name and business address of each DBE Subconsultant or vendor and the total dollar amount actually paid each DBE Subconsultant or vendor, regardless of tier. The records shall show the date of payment and the total dollar figure paid to all firms. DBE (prime) Consultant shall also show the date of work performed by their own forces along with the corresponding dollar value of the work.
- B. Upon completion of the Agreement, a summary of these records shall be prepared and submitted on the form entitled, *Final Report- Utilization of Disadvantaged Business Enterprises (DBE), First-Tier Subcontractors*, and certified correct by the Consultant or Consultant's authorized representative, and shall be furnished to the Caltrans Contract Manager. The form shall be furnished to the Caltrans Contract Manager with the final invoice. Failure to provide the summary of DBE payments with the final invoice will result in twenty-five percent (25%) of the dollar value of the invoice being withheld from payment until the form is submitted. The amount will be returned to Consultant when a satisfactory *Final Report Utilization of Disadvantaged Business Enterprises (DBE), First Tier Subcontractors* is submitted to the Caltrans Contract Manager.

VIII. DBE/UDBE SUBSTITUTIONS

- A. Consultant may not substitute a listed DBE Subconsultant, supplier or, if applicable, a trucking company, without the prior written approval of the Caltrans Contract Manager. Failure to obtain approval of substitute

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subconsultants before work is performed, supplies are delivered, or services are rendered may result in payment being denied by Caltrans.

- B. Consultant must make an adequate good faith effort (GFE) to find another certified DBE/UDBE Subconsultant to substitute for the original DBE/UDBE Subconsultant. GFE shall be directed at finding another DBE/UDBE Subconsultant to perform at least the same amount of work under the Agreement as the DBE/UDBE Subconsultant that was substituted or terminated to the extent needed to meet the contract goal for DBE/UDBE participation established for the Agreement.
- C. The requirement that DBEs must be certified by the Statement of Qualification due date does not apply to DBE substitutions after award of the Agreement. DBEs substituted after award must be certified at the time of the substitution.
- D. Consultants shall submit requests for substitution to the Caltrans Contract Manager. Authorization to use other Subconsultants or suppliers may be requested for the following reasons:
 - 1. Listed DBE, after having had a reasonable opportunity to do so, fails or refuses to execute a written Agreement, when such written Agreement, based upon the terms and conditions for this Agreement or on the terms of such Subconsultant's or supplier's written proposal, is presented by Consultant.
 - 2. Listed DBE becomes bankrupt or insolvent.
 - 3. Listed DBE fails or refuses to perform subcontract or furnish listed materials.
 - 4. Consultant stipulated that a bond was a condition of executing subcontract and listed DBE Subconsultant failed or refuses to meet the bond requirements of Consultant.
 - 5. Work performed by listed Subconsultant is substantially unsatisfactory and is not in substantial conformance with scope of work to be performed, or Subconsultant is substantially delaying or disrupting the progress of work.
 - 6. When it would be in the best interest of the State.

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- E. At a minimum, Consultant's substitution request to the Caltrans Contract Manager must include a:
1. Written explanation of the substitution reason and, if applicable, Consultant must also include the reason a non-DBE Subconsultant is proposed for use.
 2. Written description of the substitute business enterprise, including its business status, DBE certification number, and status as a sole proprietorship, partnership, corporation, or other entity.
 3. Written notice detailing a clearly defined portion of the work identified both as a task and as a percentage share/dollar amount of the overall Agreement that the substitute firm will perform.
- F. Prior to the approval of Consultant's substitution request, the Caltrans Contract Manager must give written notice to the Subconsultant being substituted by Consultant. A copy of the notice sent by the Caltrans Contract Manager must be sent to the Division of Procurement and Contracts (DPAC). The notice must do all of the following:
1. Give the reason Consultant is requesting substitution of the listed Subconsultant;
 2. Give the listed Subconsultant five working days within which to submit written objections to DPAC and copies to the Caltrans Contract Manager;
 3. Notify the Subconsultant that if a written objection is not received or received past the due date, such failure will constitute consent to the substitution; and
 4. Be served by certified or registered mail to the last known address of the listed Subconsultant.

The listed Subconsultant, who has been so notified, shall have five working days within which to submit written objections of the substitution to the Caltrans Contract Manager. Failure to submit a written objection shall constitute the listed Subconsultant's consent to the substitution.

- G. If written objections are filed by the listed Subconsultant, DPAC will render a written decision. DPAC shall give written notice of at least five

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(5) working days to the listed Subconsultant of a hearing by Caltrans on Consultant's request for substitution.

IX. DBE CERTIFICATION AND DE-CERTIFICATION STATUS

- A. If a DBE Subconsultant is decertified during the life of the Agreement, the decertified Subconsultant shall notify Consultant in writing with the date of decertification. If a Subconsultant becomes a certified DBE during the life of the Agreement, the Subconsultant shall notify Consultant in writing with the date of certification.
- B. Consultant shall report any changes to the Caltrans Contract Manager within 30 days.

X. DBE/UDBE ELIGIBILITY

- A. The dollar value of work performed by a UDBE is credited/counted toward the goal only after the UDBE has been paid.
- B. Credit for UDBE Prime Consultants

Consultant, if a certified UDBE, is eligible to claim all of the work toward the goal except that portion of the work to be performed by non-UDBE Subconsultants.

- C. Credit for Material or Supplies

Credit for materials or supplies purchased from DBEs will be as follows:

1. If the materials or supplies are obtained from a DBE manufacturer, one hundred percent (100%) of the cost of the materials or supplies will count toward the DBE goal. A DBE manufacturer is a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the Agreement and of the general character described by the specifications.

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2. If the materials or supplies are purchased from a DBE regular dealer, sixty percent (60%) of the cost of the materials or supplies will count toward the DBE goal. A DBE regular dealer is a firm that owns, operates or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the Agreement are bought, kept in stock, and regularly sold or leased to the public in the usual course of business. To be a DBE regular dealer, the firm must be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question. A person may be a DBE regular dealer in such bulk items as petroleum products, steel, cement, gravel, stone or asphalt without owning, operating or maintaining a place of business provided in this paragraph.
 3. If the person both owns and operates distribution equipment for the products, any supplementing of regular dealers' own distribution equipment shall be by a long-term lease agreement and not an ad hoc or Agreement by Agreement basis. Packagers, brokers, manufacturers' representatives, or other persons who arrange or expedite transactions are not DBE regular dealers within the meaning of this paragraph.
 4. Credit for materials or supplies purchased from a DBE that is neither a manufacturer nor a regular dealer will be limited to the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on the job site, provided the fees are reasonable and not excessive as compared with fees charged for similar services.
- D. Credit for DBE trucking companies will be as follows:
1. The DBE must manage and supervise the entire trucking operation for which it is responsible. There cannot be a contrived arrangement for the purpose of meeting the DBE/UDBE goal.
 2. The DBE must itself own and operate at least one fully licensed, insured and operational truck used on the Agreement.

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3. The DBE receives credit for the total value of the transportation services it provides on the Agreement using trucks it owns, insures, and operates using drivers it employs.
4. The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the Agreement.
5. The DBE may also lease trucks from a non-DBE firm, including an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit only for the fee or commission it receives as a result of the lease arrangement. The DBE does not receive credit for the total value of the transportation services provided by the lessee, since these services are not provided by the DBE.
6. For the purposes of this paragraph, a lease must indicate that the DBE has exclusive use and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, as long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks must display the name and identification number of the DBE.

XI. TERMINATION OF DBE/UDBE

A. In conformance with 49 CFR 26.53 (f) (1) and 26.53 (f) (2):

1. Consultant shall not terminate for convenience a listed DBE Subconsultant and then perform that work with its own forces (personnel), or those of an affiliate, unless Consultant has received prior written authorization from the Caltrans Contract Manager to perform the work with other forces (other than Consultant's own personnel) or to obtain materials from other sources;
2. If a DBE Subconsultant is terminated or fails to complete its work for any reason, Consultant will be required to replace that original DBE subconsultant with another DBE subconsultant; and

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3. If a UDBE Subconsultant is terminated or fails to complete its work for any reason, Consultant will be required to make GFE to replace the original UDBE Subconsultant with another UDBE Subconsultant to the extent needed to meet the Agreement goal.
- B. Noncompliance by Consultant with the requirements of this section is considered a material breach of this Agreement and may result in termination of the Agreement or other such appropriate remedies for a breach of this Agreement as Caltrans deems appropriate.

SCOPE OF WORK/DELIVERABLES

Data collection and Airport pavement conditions survey services

A. Project Description

The general scope of work for this project is to collect data and conduct pavement condition surveys to update or create Airport Pavement Management System (APMS) surveys for the State of California, Department of Transportation.

B. Description of Required Services

The Consultant shall collect data and conduct visual pavement condition surveys to update the previous Airport Pavement Management System (APMS) surveys or create new APMS surveys for the Division of Aeronautics hereinafter referred to as the Division. This was first accomplished in 1987-88 and then updated in 1994-95 and 2006-07. The evaluation is to include all airport pavements, e.g., runways, taxiways, taxilanes, aprons, and tiedowns. A pavement management process shall be used that includes system inventory, condition assessment of the pavement, data analysis, development of a pavement maintenance and rehabilitation strategy recommendation. For this update, the airports listed in Attachment-A are to be evaluated. This is comprehensive but not an exclusive list of all airports. The work to be performed for specific airport(s) will be stated in a Task Order. The amount of work for each of these airports will not be the same due to size, availability of information, and location. Any information not available will need to be supplemented by the Consultant.

The APMS survey shall have the entire component and data elements described in the most current Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5380-7A "Airport Pavement Management Program." Pavement inspection and condition evaluations are to be made in accordance with FAA-AC 150/5380-6B "Guidelines and Procedures for Maintenance of Airport Pavements," as well as ASTM D5340-10 for "Standard Test Method for Airport Pavement Condition Index Surveys." The newest standard of non-destructive pavement testing is encouraged for this project. Pavement Condition Indexes shall be obtained for each airport sample. The latest version of the MicroPAVER pavement management software prepared by the U.S. Army Corps of Engineers and distributed by the University of Illinois or similar shall be used and made available in user-friendly reporting formatting to the Division. All data collected will become property of the Division. The Consultant will provide all necessary software required to use the digital data produced for this contract that is not currently licensed to the Division.

The FAA advisory circulars can be found at following web link:
http://www.faa.gov/airports/resources/advisory_circulars/

Since the advisory circulars, guidelines, standards, and like items are living documents, it will be the responsibility of the Consultant to verify that the latest version or update has been received.

Consultant will not be reimbursed for any work performed utilizing outdated and/or superceded FAA advisory circulars.

The specifics to be accomplished with this project are: Task 1 through Task 7.

Task 1 – Review, Update or Create Construction and Maintenance APMS History

When available, Caltrans will provide electronic copies of the APMS reports and AutoCAD maps from the previous surveys to the Consultant. A paper sample will be available, if requested. However, the Consultant is not to depend on these APMS documents for accomplishing the tasks in this contract. An electronic APMS report example will be provided. See **Attachment C**.

The Consultant shall review and update the Inventory and History for each airport pavement feature. The data collected shall be in the format used in the current MicroPAVER software version. Any pavement addition or maintenance since the previous surveys shall also be included.

Task 2 – Contact Airport and Managers

At contract award, Attachment A contains a listing of Airport Managers (AM). At the beginning of the project, the Division of Aeronautics will contact each airport announcing the start of the study, introducing the Consultant, explaining the objectives of the program, and requesting their support throughout the study. At least three (3) weeks prior to inspection, the Consultant will call and write a letter to each AM about the APMS inspection, explaining its purpose, and requesting confirmation of work included on the Design, Construction and Maintenance History forms. The Consultant will then contact each AM to schedule an inspection and discuss the availability of files, plans, pavement evaluations, or other information. The proposed inspection should be scheduled at the AM's convenience. The Consultant shall send a follow-up letter one (1) week prior to the inspection. The Consultant will need to make its own arrangements for contacting various Airport Managers or sponsors for scheduling appointments to conduct pavement surveys.

Task 3 – Determine the Number and Location of Sample Units

The Consultant shall divide each branch in accordance with the methodology established in FAA-AC 150/5380-6B "Guidelines and Procedures for Maintenance of Airport Pavements" and ASTM D5340-10, including the most current test methods. For those airports being updated from the previous surveys, the Consultant shall use the same sample unit locations. However, if there are changes to the pavement features, appropriate locations shall be added in accordance with FAA-AC 150/5380-6B. Pavement features and sample units shall be delineated on the airport drawings. A pavement management process shall be used that includes system inventory, condition assessment of the pavement, data analysis, development of a pavement maintenance and rehabilitation strategy recommendation.

Task 4 – Conduct Pavement Condition Survey

The Consultant shall conduct airport pavement condition surveys, including a pavement condition index (PCI) and identify pavement distresses in the previously established sample units, using the procedures outlined in FAA-AC 150/5380-6B, Appendices A and B and ASTM D5340-10 and the most current test methods used. Non-quantifiable items should be noted so that they can be taken into account along with the PCI ratings. For each sample unit that is surveyed, the Consultant will record the GPS coordinates for the centroid of the sample unit. The Consultant shall provide the Global Positioning System (GPS) coordinates for each corner of all the runways surveyed. Palm pilots, GPS receivers and other state of the art technology shall be used in the collection of survey data. The digital files of the survey and airport drawings shall be delivered to the Division of Aeronautics, Federal Aviation Administration (FAA) and to each individual airport at the completion of the surveys.

Many airports in the northern and eastern part of the State are subject to snow conditions. The Consultant should plan an inspection schedule giving consideration to the weather conditions.

Task 5 – Update or Create New Airport Drawings

Prepare updates or create the airport drawings of the surveyed airports, as shown in **Attachment C**.

Drawings shall match existing airside site conditions. Drawings may be accomplished with any combination of existing data. For example, data includes, but is not limited to, current Airport Layout Plans, engineering plans, aerial photos, AutoCAD drawings, actual site survey using appropriate instruments, and visual surveys.

Programs used to update or create new airport drawings shall be compatible with MicroPAVER. This program compatibility shall allow integration of the drawings with MicroPAVER for the inclusion of drawings into APMS reports. Drawings must have detail sufficient to meet all the needs for detailed reports of APMS generated from field surveys and MicroPAVER.

The Consultant will be responsible for the accuracy of these drawings. The Division of Aeronautics will attempt to provide the Consultant CD-ROM discs, copies of AutoCAD files for airports previously surveyed. Drawings will be updated to show construction at airports since the last survey and revised to more accurately indicate location and size of pavement at the airports.

AutoCAD drawings shall conform to **Attachment B**. Line, weight, style, and color shall be pre-approved by the Division of Aeronautics. Drawings shall be drawn in model space at 1 to 1 at real world coordinates. Three paper spaces shall be established: 1) 11" x 14" with no scale; 2) 11" x 17" scaled; and 3) 22" x 34" scaled.

The required level of accuracy for the updates is to correctly show pavement facilities that have been added or removed from the airport.

Location of a pavement facility shall be shown as close as possible to its true location, relative to other airport pavement facilities.

The Consultant shall create Geographical Information System (GIS) computer software links of the existing data, survey data, and data update to the graphical representation of airports in such a manner that the links will create representation of the data collected in the same manner as the previous APMS report using MicroPAVER, as shown in the example on **Attachment C**.

Task 6 –Provide Training

The Consultant shall provide training overview in conducting pavement condition surveys and identifying pavement distress for Division staff or other designated representatives (not to exceed 10 people) at a Sacramento, Ca. location convenient to the Division. In addition, airport staff or Public Works staff shall be provided the opportunity to observe and participate in the inspection process (no more than 8 locations in the state) to be coordinated between the Consultant and the Division.

From the rating sheets provided by inspection teams, the Consultant will calculate the Pavement Condition Index (PCI) for each pavement section. A list of pavement condition descriptions such as alligator cracking, spalling, and like conditions shall be provided and identified for each airport as shown in **Attachment C**.

The latest version of MicroPAVER pavement management software and the operating system is to be used. Software compatible with the Division is to be used for the calculations. The Division currently is using Windows XP operating system; however, this may be upgraded to Windows 7 operating system. The Consultant shall provide original licensed MicroPAVER software and training in the use of MicroPAVER for the Division (not to exceed 10 people) at a Sacramento, California location convenient to the Consultant and Division.

Task 7 – Generate Reports

The Consultant will generate a report for each airport inspected and evaluated. A draft shall be prepared so that the Division can approve the format prior to final reporting. This report shall be in the format and contain the same type of information as provided in the sample APMS report. The Consultant will prepare the final APMS report. Consultant is to prepare reports and send them out to each individual airport, in electronic and also hard copy. The Consultant shall also provide a similar combined, full set for the Federal Aviation Administration (FAA) and a combined, full set for the Division. The report shall be based on MicroPAVER software that is compatible with the Division. The final electronic report shall also be prepared in one format, such as pdf. For example, refer to **Attachment C**.

The Consultant shall provide a Summary Report that includes, for all airports, Airport pavement PCI rating plates, Maintenance Recommendations, Design, Construction and Maintenance History forms, current and future maintenance estimated costs and PCI forms. This summary shall be bound in loose-leaf notebooks or similar, easy to access individually complete bound

reports. These reports shall be based on MicroPAVER software compatible with the Division's software. Refer to **Attachment C** for an example. The Consultant needs to provide the Division the latest version of MicroPAVER software used for the report.

Copies of the Final Reports and Summary Reports shall be submitted to the Division in hard copy notebook binders and electronically, on CD-ROM, and shall include all AutoCAD and MicroPAVER files used in the preparation of the reports. The Consultant shall provide the following:

1. All MicroPAVER files generated from the inspection ratings sheets shall be supplied on CD-ROM discs, and any MicroPAVER pavement management software necessary to run the evaluation and reporting capabilities of MicroPAVER. Report to include a Re-Inspection Report, that has specific pavement distress details for those representative sample units that were physically inspected, an excel spreadsheet (or similar) with Branch, Section, Sample ID's latitude and longitude locations (Northings and Eastings), a Section Condition Report detailing when the inspection occurred, pavement surface type and PCI rating.
2. Electronic copies of AutoCAD drawings (including new and updated) and copies of all reports in Microsoft Word or Excel format on CD-ROM discs shall be compatible with the Division's current software and Windows operating system.
3. Hard Copy print outs of the full-sized AutoCAD plot of the airport pavement with runway, taxiway, branch, section and inspected sample unit shown, used as a key map reference for identifying sample numbers taken and section data report.
4. GIS Color airport drawing depicting color legend of PCI. Overall PCI for each runway, taxiway or apron sampled to be shown in color. Colors range from Good to Satisfactory (Green), Cautionary (Yellow) and Red (Poor to Very Serious) on a rating scale from 1 to 100, with 100 representing pavement in excellent condition. See **Attachment C** for example.
5. Pavement condition prediction model graph based on MicroPAVER software that details the short term (2-5 years) preventative maintenance and long term (5-10 years) pavement rehabilitation strategies recommended for the specific airport including a cost estimate for recommended work (i.e., seal cracks in both asphalt or concrete pavement, repair concrete joint spalls, overlay) based on the particular pavement distress type found during the pavement condition data collection. A pavement management preventative model graph shall be included to demonstrate the need for preventative maintenance, such as a thin overlay or slurry seal to deter the exponential rate of deterioration if no pavement management is applied, thus leading to a full structural section rehabilitation. A prediction model from MicroPAVER including pavement maintenance cost and strategy recommendation shall be included (No Fog Seal).
6. AutoCAD drawings shall include at a minimum, the airport's name, legend, scale, north arrow, pavement dimensions with runway, taxiway, branch, section and inspected sample number shown. Pavement inventory to include at minimum, location of runways, taxiways and aprons, dimensions, type of pavement, year of

construction or most recent year of major rehabilitation, GPS longitude and latitude of sample ID taken, list of possible pavement distresses and PCI rating for each sample.

7. PCI calculations and Frequency report to be explained as shown in example **Attachment C**.
8. In addition to separate electronic files, a final electronic report shall be a complete pdf file of all data and map sections similar to Attachment C, APMS report. The reason for doing this is to keep the report all in one format, easy for the airport managers to read. Many AM's do not have MicroPAVER or AutoCAD software.
9. Current and future pavement maintenance needs including estimated costs.

C. Materials to be Furnished by Caltrans (Division)

The Division will attempt to provide the Consultant with electronic copies of AutoCAD files and reports of airports that were previously surveyed. An example of the survey report will also be included for reference. **See Attachment C**.

D. Work to be Performed by Caltrans (Division)

Division to contact each airport that announces the start of the study, introduces the Consultant, explains the objectives of the program, and requests their support throughout the study.

E. Deliverables

Task 1 – Inventory and History of each airport APMS pavement feature. Records review.

Task 2 – Contact Airport and Airport Managers – Copies of all letters sent to AM's shall be delivered to the Division at the time the original letters are sent.

Task 3 – Sample Units and Pavement Features shown on airport drawings and included in electronic files.

Task 4 – Conducts Pavement Condition Survey –The Consultant shall conduct pavement surveys according to specified test methods including PCI ratings. The digital files of the survey shall be submitted in groups of no less than ten (10) airport surveys at one time. A draft survey will first be submitted to the Division for approval.

Task 5 – Update or Create New Airport Drawings – The deliverable for this task will include the updated or new airport drawings for each airport. A draft of the airport drawing will be provided to the Division for approval. The Division will review the task invoice.

Create GIS Link – The deliverables for this task are the linked data from the survey to the airport drawings. These links shall be submitted to the Division for approval.

Task 6 – Consultant shall provide training for pavement inspection and use of MicroPAVER software to office personnel and provide software support. Training schedule and contents shall be approved by the Division.

Task 7 – Consultant shall prepare draft report and submit to the Division for approval. Once approved, Consultant shall prepare reports, send them out to each individual airport listed and provide a combined, full set for the Federal Aviation Administration and also a combined, full set for the Division in both electronic and hard copy formats.

The Consultant has total responsibility for the accuracy and completeness of all studies, reports, plans and reports as outlined in Task Nos. 1 through 7 described above. The Task Order deliverables will be reviewed by Caltrans for conformity with the Task Order. The Division will provide a cursory review of the Consultant’s deliverables. Reviews by Caltrans do NOT include detailed review or checking of major components, related details, or the accuracy of professional engineering work as depicted in the Task Order deliverables. The responsibility for accuracy and completeness of such items remains solely with the Consultant.

The Consultant shall not be reimbursed for any services performed or deliverables provided outside of the scope, schedule, cost and deliverables of the Task Order(s). If any payment is made to the Consultant for unauthorized work, the Consultant shall reimburse such amount to the Department or the Department reserves the right to deduct such amounts as necessary from future invoices.

F. Schedule (Milestones)

<u>Milestones</u>	<u>Months After Notice to Proceed</u>
1. Begin Work	1
2. Complete Task 1 & 2	1-12
3. Complete Task 3	2-24
4. Complete Task 4	3-24
5. Complete Task 5	3-24
6. Complete Task 6	4-24
7. Complete Task 7	4-24

Personnel:

- Licensed Civil Engineer in the State of California to lead the team.
- Five (5) years experience in Pavement Inspection Surveys, including Airport Pavements.
- Education: Masters in Civil Engineer for leader, and Bachelors of Science in Civil Engineering for engineers.
- Availability to answer questions by e-mail and phone within 24 hours.
- Ability to travel to Headquarters building, Division of Aeronautics, 1120 N St., Sacramento, CA 95814, for personal interaction and training.

- The Consultant shall provide a Project Manager to coordinate the Consultant's operations under the Agreement for this scope of work. The Consultant's Project Manager shall be a licensed a Civil Engineer, in the State of California with minimum five (5) years experience in Pavement Inspection, including Airport Pavements.
- The Consultant's Project Manager shall be accessible to the Department's Contract Manager at all times during the Department's normal working hours. The Consultant's Project Manager shall be responsible for all matters that are related to the Consultant's personnel and operations including but not limited to:
 - a. Review, monitor, train and direct Consultant's personnel.
 - b. Assign qualified personnel to perform Task Order work.
 - c. Administer personnel actions.

The Consultant's Task Order Manager performing individual tasks listed above under Task Nos. 1 through 7, shall be a Licensed Civil Engineer in State of California with at least two (2) years of prior experience in Pavement Inspection, including Airport Pavements.

**ATTACHMENT A
2010 AIRPORT INFORMATION**

No	AIRPORT	COUNTY
1	(Bishop) EASTERN SIERRA REGIONAL	Inyo
2	(GENERAL) WILLIAM J. FOX	Los Angeles
3	(Orland) HAIGH FIELD	Glenn
4	APPLE VALLEY	San Bernardino
5	AUBURN MUNICIPAL	Placer
6	BANNING MUNICIPAL	Riverside
7	BARSTOW-DAGGETT	San Bernardino
8	BENTON	Shasta
9	BIG BEAR CITY	San Bernardino
10	BLYTHE	Riverside
11	BOONVILLE	Mendocino
12	BRAWLEY MUNICIPAL	Imperial
13	BRYANT FIELD	Mono
14	BUTTE VALLEY	Siskiyou
15	CALAVERAS COUNTY	Calaveras
16	CALEXICO INT.	Imperial
17	CALIFORNIA CITY MUNI.	Kern
18	CAMERON AIR PARK	El Dorado
19	CHOWCHILLA	Madera
20	CLOVERDALE MUNICIPAL	Sonoma
21	COLUMBIA	Tuolumne
22	CORNING MUNICIPAL	Tehama
23	DUNSMUIR MUNI-MOTT	Siskiyou
24	FALL RIVER MILLS	Shasta
25	FIREBAUGH	Fresno
26	FRANKLIN FIELD	Sacramento
27	GARBERVILLE	Humboldt
28	GEORGETOWN	El Dorado
29	GUSTINE	Merced
30	HANFORD MUNICIPAL	Kings
31	HAPPY CAMP	Siskiyou
32	HAYFORK	Trinity
33	HEALDSBURG MUNICIPAL	Sonoma
34	HOLLISTER MUNICIPAL	San Benito
35	INDEPENDENCE	Inyo
36	KERN VALLEY	Kern
37	LAKE TAHOE	El Dorado
38	LEE VINING	Mono
39	LOMPOC	Santa Barbara
40	LONE PINE	Inyo
41	LOS BANOS MUNICIPAL	Nerced
42	LOST HILLS	Kern
43	MADERA MUNICIPAL	Madera
44	MAMMOTH YOSEMITE	Mono
45	MARINA	Monterey
46	MARIPOSA-YOSEMITE	Mariposa
47	MEFFORD FIELD	Tulare
48	MENDOTA	Fresno
49	MERCED REGIONAL/MAC READY FIELD	Merced
50	MESA DEL REY	Monterey
51	MOJAVE	Kern
52	NEEDLES	San Bernardino
53	NEW COALINGA	Fresno
54	NUT TREE	Solano
55	OAKDALE MUNICIPAL	Stanislaus
56	OCEANO COUNTY	San Luis Obispo

**ATTACHMENT A
2010 AIRPORT INFORMATION**

No	<u>AIRPORT</u>	<u>COUNTY</u>
57	OCEANSIDE MUNICIPAL	San Diego
58	PASO ROBLES MUNICIPAL	San Luis Obispo
59	PINE MOUNTAIN LAKE	Tuolumne
60	PLACERVILLE	El Dorado
61	PORTERVILLE MUNICIPAL	Tulare
62	RED BLUFF MUNICIPAL	Tehama
63	REDLANDS MUNICIPAL	San Bernardino
64	REEDLEY MUNICIPAL	Fresno
65	RUTH	Trinity
66	SALINAS MUNICIPAL	Monterey
67	SANTA YNEZ	Santa Barbara
68	SCOTT VALLEY	Siskiyou
69	SEQUOIA FIELD	Tulare
70	SHELTER COVE	Humboldt
71	SISKIYOU COUNTY	Siskiyou
72	SUSANVILLE MUNICIPAL	Lassen
73	SUTTER COUNTY	Sutter
74	TAFT	Kern
75	TEHACHAPI MUNICIPAL	Kern
76	TRACY MUNICIPAL	San Joaquin
77	TRINITY CENTER	Trinity
78	TURLOCK MUNICIPAL	Merced
79	TWENTYNINE PALMS	San Bernardino
80	UKIAH MUNICIPAL	Mendocino
81	WASCO	Kern
82	WEED	Siskiyou
83	WESTOVER FIELD	Amador
84	WILLITS MUNICIPAL - ELLS FIELD	Mendocino
85	WILLOWS - GLENN COUNTY	Glenn

**PREPARATION OF THE VICINITY MAP
AND AIRPORT LAYOUT DRAWING**

A vicinity map and airport layout drawing is required for use with the Airport Pavement Management System (APMS) for every airport included in this contract. These drawings shall follow the same format as that of the Airport Master Record drawing, which is described below. In addition to an airport layout drawing, a vicinity sketch shall be drawn for each airport. The vicinity sketch serves to locate the airport relative to its associated city and the airport layout drawing portrays the essential features of the facility.

Drawing border configuration will be provided by Caltrans, Division of Aeronautics. To assure uniform drawings, all of the items in this appendix shall, where possible, be included. Additional items may be included but should be kept to a minimum to preclude needless detail and clutter.

Drawings shall be produced using computer-aided drafting (CAD) systems. They should be printed in color on high quality paper.

1. STANDARD DRAWING

(A) The following items are included on the standard drawing form and these data shall agree with the appropriate Airport Master Record data elements.

<u>Item</u>	<u>Data Element No.</u>
(1) Associated city/Community and State ----- Place the name of the associated city and the 2-letter state code in the upper left-hand corner of the form	1 & 4
(2) Airport Name ----- Place the official airport name, followed by the three/four letter FAA identifier (in parentheses), at the top center of the border	2
(3) FAA Site Number ----- Place the airport's assigned FAA site number in the upper right hand corner of the border	
(4) North Arrow ----- An open arrow pointing toward true north.	

(5) Scale -----

Varies

(6) Date -----

Numerically indicate the month, day and year of the drawing or latest revision

2. VICINITY MAP

(A) The vicinity map shall show the airport with its correct position relative to the associated city/community. In addition, sufficient roads shall be shown so that the airport can be reached by auto from the associated city/community. At least one road must be common to both the vicinity sketch and the airport layout drawing. If this cannot be readily accomplished, indicate on the airport drawing the distance and direction to a road that is included on the vicinity sketch.

(B) The vicinity map shall include aeronautical facilities, communities, rivers and railroads. Although accuracy is essential, detailed cultural features are not necessary and the vicinity map does not have to be produced to scale. The true north arrow for the vicinity map should, in all cases, be oriented toward the top of the page.

(C) The following data shall be shown on the vicinity map, and this information shall agree with the referenced Airport Master Record data element.

<u>Item</u>	<u>Data Element No.</u>
(1) Location and name of the Associated City/Community -----	1
(2) Location of the airport and its <u>official</u> name -----	2
(3) Location of major highways, roads, railroads, bodies of water, etc. -----	1
(4) Location, but not the name, of other airports which when shown may clarify the subject airport's location -----	

3. AIRPORT LAYOUT DRAWING

(A) The basic purpose of the airport layout drawing is to portray the essential features of the airport in such a manner that the user can visualize the general configuration of the facility. Where possible, the boundaries of the drawing should depict all manmade objects and natural features within the airport's surrounding environment. At a minimum, the location of significant objects(s)/feature(s) referenced on the Airport Master Record should be shown. If these are beyond the bounds of the drawing, their relative location should be indicated by an arrow.

Additional information provided must be limited in order to give the drawing an uncluttered appearance.

(B) The airport layout drawing should be oriented to take full advantage of the available drawing space. To assure uniform appearance, lettering should, where possible, be parallel to the bottom of the sheet. DO NOT orient the drawing so that the true north arrow points toward the bottom of the sheet.

(C) The drawing's data must agree with that recorded in the appropriate Airport Master Record data element.

<u>Item</u>	<u>Data Element No.</u>
(1) Surface Access Roads and Railroads ----- Indicate, if appropriate, their relative elevation with respect to the runway ends.	
(2) Buildings ----- Including "T"-Hangars, Conventional Hangars, Terminal and Administration Buildings. Buildings need not be labeled although if space permits the administration or terminal building should be identified.	
(3) Control Tower -----	85
(4) Layout of the Apron -----	
(5) Helicopter Touchdown Area ----- Indicate the location and designation (H1, H2, etc.), as appropriate.	30
(6) Airport Beacon-----	80
(7) Wind Indicator(s) ----- Note if lighted.	83
(8) Segmented Circle ----- Do <u>not</u> indicate presence of traffic pattern designators	84
(9) Seaplane docks/Ramps -----	
<u>Runway/Taxiway System</u>	
(1) Runway(s) Identification Numbers ----- Portray runway ID numbers within an ellipse at the runway threshold whether or not actually present.	30
(2) Runway(s) Physical Length ----- Note that the runway's physical length including the length	31

	of any displaced thresholds.	
(3)	Runway(s) Width -----	32
(4)	Runway(s) Surface Type -----	33
(5)	Displaced Threshold(s) -----	51
	Indicate the length of the displacement.	
(6)	Stopway(s)/Relocated Threshold(s) -----	
	Do not indicate the length.	
(7)	Taxiway Layout -----	
	Taxiway width and designation may be shown if not adding to the drawing's clutter.	
(8)	Runway Gradient -----	
	Indicate the direction of the <u>up gradient</u> with an arrow followed by the word "up."	

Lighting/Approach Aids

(1)	Runway Edge Lights -----	40
	Indicate the presence of runway lights using the appropriate acronym (LIRL, MIRL, etc.)	
(2)	Runway End Identifier Lights (REIL) -----	49
(3)	Runway approach Light Systems -----	49
(4)	Other Electronic Aids (LOC, GS, NDB, AWOS, etc.) -----	
	Indicate those located within the confines of the sketch.	
(5)	Visual Glide Slope Indicator (VGSI) -----	43
(6)	Taxiway Lighting -----	
	Indicate which taxiways are lighted if not contributing to the drawing's clutter.	

Approach Data

Within each approach surface indicate, by type and height above the touchdown zone or runway end elevation, manmade objects and natural features located within the confines of the drawing. Indicate by arrow those significant objects(s)/feature(s) outside the confines of the drawing. As a minimum, the airport layout drawing should include a graphic reference to EACH controlling object or close-in obstruction identified in data elements #52 and #58 of the Airport Master Record.

4. LAYOUT DRAWING LAYER ASSIGNMENTS

These layer assignments have been identified to enhance the utility of the airport layout drawing electronic graphic data file. The approach has been to retain flexibility in the file structure so that the data can be accessed for a number of varied graphic products beyond simply the production of the Master record's airport layout sketch.

Among the other potential uses of the graphic data file are:

- A State Airport Directory
- An airport Capital Improvement Plan
- A Navigational Aid (NAVAID) and/or Airport Lighting Status Report

Layer #1: “5010 Airport Layout Drawing Template and Associated Text”
[Would include the sketch border, the border for the location sketch insert, and the following text material: “FAA SITE NO.”; “AIRPORT LAYOUT SKETCH”; “LOCATION MAP”; “NOT TO SCALE”; “REVISION DATE”; and “REMARKS”]

Layer #2 “Subject airport Administrative Text”
[Would include the full airport name and associated city as they appear on the Airport Master Record (5010) Form, a north arrow for both the sketch and the location map, the airport’s FAA site number and the sketch revision date]

Layer #3: “Airfield Physical Layout Graphic”
[Would portray all visible (active, under-construction or closed) runways, taxiways and aprons plus the airport terminal building]

Layer #4: “Airfield Physical Layout Text”
[Would include all descriptive and identifying text associated with Layer #3]

Layer #5: “Airport Layout Graphic”
[Would include symbols for features such as the fuel pump(s), fuel storage facility, wind sock(s), segmented circle and non-terminal buildings located within the airport’s property line]

Layer #6: “Airport Layout Text”
[Would include all descriptive and identifying text associated with the features shown on Layer #5 plus any remarks]

Layer #7: “Lighting and NAVAID Graphic”
[Would include symbols representing all airport lighting and navigational aids both visual and instrument, such as the rotating beacon, visual approach guidance indicators, threshold lights, runway or taxiway lights, etc.]

Layer #8: “Lighting and NAVAID Text”
[Would include all descriptive and identifying text associated with the features shown on Layer #7 plus any associated remarks]

Layer #9: “Airport Environs Graphic”
[Would include non-aviation features located within the airport’s property line, surface access features and off-airport features within the airport’s FAR Part 77 surfaces]

Layer #10: “Airport Environs Text”

[Would include all descriptive and identifying text associated with the features shown on Layer #9]

Layer #11: “Proposed Airport Construction Graphic”

[Would portray features such as runways, taxiways, aprons or buildings the construction of which has not yet begun]

Layer #12: “Proposed Airport Construction Text”

[Would include all descriptive and identifying text associated with the features shown on Layer #11]

Layer #13: “Airport Location Map Graphic”

[Would include those surface reference features, such as the airport’s associated city, major highways and railroad lines and the airport’s access road, necessary to facilitate easy location of the airport by car]

Layer #14: “Airport Location Map Text”

[Would include all descriptive and identifying text associated with the features shown on Layer #13]

Layer #15: “Airport Administrative Data template”

[Would provide a separate data insert box for optional display when drawings are viewed on a computer terminal]

Layer #16: “Airport Administrative Data Text”

[Would include selected portions of the Airport Master Record’s administrative information carried in data elements #10 - #26 and #70 - #89]

Layer #17: “Lighting and NAVAID System Administrative Text”

[Would include descriptive and identifying text covering NAVAID and airfield lighting equipment model type, replacement part numbers and maintenance responsibilities]

Layer #18: “Descriptive index of layer components”

Layer #19: “Legend of PCI ratings”

Layer #20: “Runway(s)”

Layer #21: “Runway(s) sample unit locations”

Layer #22: “Runway(s) PCI rating”

Layer #23: “Text associated with runway(s) PCI rating”

- Layer #24: “Taxiway(s)”
- Layer #25: “Taxiway(s) sample unit locations”
- Layer #26: “Taxiway(s) PCI rating”
- Layer #27: “Text associated with taxiway(s) PCI rating”
- Layer #28: “Apron(s)”
- Layer #29: “Apron(s) sample unit locations”
- Layer #30: “Apron(s) PCI rating”
- Layer #31: “Text associated with apron(s) PCI rating”
- Layer #32: “Parking lot(s)”
- Layer #33: “Parking lot(s) sample unit locations”
- Layer #34: “Parking lot(s) PCI rating”
- Layer #35: “Text associated with parking lot(s) PCI rating”
- Layer #36: “Miscellaneous”
- Layer #37: “Text associated with miscellaneous”

**2006 AIRPORT PAVEMENT
MANAGEMENT SYSTEM (APMS)**

**CHICO MUNICIPAL AIRPORT
BUTTE COUNTY**

**California Department of Transportation
Division of Aeronautics
Contract No. 63A0052**

May 2007

KLEINFELDER WEST, INC.
8 Pasteur Street, Suite 190
Irvine, California 92618

ACKNOWLEDGEMENT

This document has been prepared under the sponsorship of the California State Department of Transportation through Contract No. 63A0052 entitled "Airport Pavement Management System (APMS) Update." Final Assistance was received from the Federal Highway Administration through the AIP Program. The assistance of the Caltrans Division of Aeronautics is acknowledged. In particular, we would like to thank Ms. Lee Provost, Mr. Alan Yu Song and Ms. Parvin Bijani for their assistance in providing technical input, guidance and review during the course of the project.

DISCLAIMER

The contents of this report reflect the views of the authors who are responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the State of California or the Federal Aviation Administration. The report does not constitute a standard, specification, or regulation.

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APPENDICES

Appendix A Inventory Report

Appendix B PCI Report and PCI Frequency Reports

Appendix C Maintenance Policy

1.0 EXECUTIVE SUMMARY

This report was prepared for the California Department of Transportation as part of a state-wide update of an existing Airport Pavement Management System (APMS). In general, this update consisted of obtaining information on maintenance, rehabilitation, and new construction activities at Chico Municipal Airport since the last survey was conducted in 1995; performing a visual pavement condition survey and updating the existing database with the information obtained for the pavements at the airport site.

The general purpose of this APMS is the following:

1. To provide an individual airport owner/manager with current and projected needs for repairing, maintaining or preserving site pavements, including cost estimates.
2. To provide the State and FAA with a state- wide list of current and projected pavement repair and preservation needs for all airports within the system.

The report presents a branch-by-branch current pavement condition index, recommendation for preserving the airport pavement system, and the estimated costs for current repair needs at Chico Municipal Airport. Also presented are projected pavement conditions, needs, and costs for the year 2011. The five-year projected costs assume no actions are taken with regard to current needs.

In summary, the overall condition of Chico Municipal Airport is 48, which is in the “yellow” or “fair” condition range. The current budget requirement to maintain all the pavements at Chico Municipal Airport is approximately \$17,268,422. The majority of this cost is related to reconstructing Tiedown Area TD1A and taxiway T3. If pavement rehabilitation is totally deferred until the year 2011, the total estimated cost for rehabilitation rises to nearly \$17,344,490.

2.0 INTRODUCTION AND SCOPE

This report presents the results of an Airport Pavement Management System (APMS) Update. The following is a list of definitions to help the reviewer more fully understand the terms used in APMS and this report.

Pavement Branch: An individual airport pavement facility. Examples of branches are “Runway 1-19”, “Taxiway B”, and “Apron 2”.

Pavement Section: All or portion of a branch having a consistent age and structural thickness and materials. Examples of sections are: 1) “Runway-20 originally constructed to 5,000 feet in 1980, with three inches of asphalt concrete on six inches of aggregate base.; 2) a 1,000-foot extension to Runway 2-20 constructed in 1990, with the same pavement section as the original; 3) a 5,000 square foot run-up apron constructed at the same time as the Runway 2-20 extension, but with three inches of asphalt concrete on four inches of aggregate base.”

Pavement Feature: A generic term not used in the APMS computer database, but commonly used interchangeably with “pavement branch”.

Sample Unit: All or a designated portion of a pavement section (generally 5,000 square feet) deemed to be representative in condition to the entire pavement section. A sample unit or group of sample units represent at least 10% of the pavement section total area and are visually surveyed to establish the overall condition of the pavement section.

PCI: Pavement Condition Index (PCI) is an average numerical value ranging from 0 (totally failed pavement) to 100 (new pavement) for a pavement sample unit, section or branch. PCI is calculated based on assumed values of 100 less deduct values. Deduct values are pre-established based on pavement distress type and severity (See FAA A/C 150/5380-06A).

During 1995, the state of California Department of Transportation (Caltrans) with funding from the Federal Aviation Administration (FAA), updated an existing Airport Pavement Management System. In general, this project included:

- Obtaining design, construction, and maintenance historical records at each airport for each pavement branch (runway, taxiway, apron, etc.).
- Conducting a visual pavement condition survey at each airport using standardized guidelines established by FAA (Advisory Circular 150/5380-06A).
- Entering the data (physical records and condition survey) into a computer program developed for pavement management systems (Micro Paver™).
- A series of reports were then developed and printed by Micro Paver™. These included a pavement inventory report, a pavement inspection report, and others. Copies of the computer-generated reports were included in the final report for each airport site. Copies of these reports were provided to the individual airport sponsor.
- Existing airport layout drawings were updated to reflect current construction documents and actual conditions encountered during the field condition surveys. Airport layout drawings were also developed showing pavement branch and condition survey sample unit locations as well as PCI ratings for each airport.

In 2006, Kleinfelder, Inc. was contracted to update the 1995 study which performed by the team of Kleinfelder, Inc. and Hodges & Shutt. The purpose of this study, in addition to updates of the maintenance, construction, and PCI since 1995, was to develop a list of current maintenance procedures necessary to increase the PCI levels to what is considered to be “acceptable” for current and future use. An additional purpose was to estimate the current costs associated with the steps necessary to implement the anticipated maintenance/rehabilitation procedures.

Our scope of services was divided into a number of tasks. In summary, the initial tasks consisted of updating the pavement histories at the airport site since the 1995 survey was conducted. Updates included changes due to new construction, major maintenance or pavement rehabilitation activities, and modifications to branch sample unit designation. After the updating tasks were completed, the airport owner/manager was notified for coordination of the field inspection. Field pavement evaluations and data processing were then completed.

The report summarizes the work completed for Chico Municipal Airport. The airport (manager/contact) person is:

NAME: Mr. Robert Grierson

ADDRESS: City of Chico
P.O. Box. 3420
Chico, CA 95927

PHONE: 530-895-4800

3.0 AIRPORT SITE DESCRIPTION AND FIELD STUDY

Chico Municipal Airport is located in Butte County. Prior to conducting the field survey, all available information regarding design/construction/maintenance changes since the 1995 study/last update was obtained. Based on the information obtained, the airport was updated, where necessary and the survey samples areas were established. The updated layout for Chico Municipal Airport showing the branch and sample designation areas are shown on the following plate. The following branch designations were used:

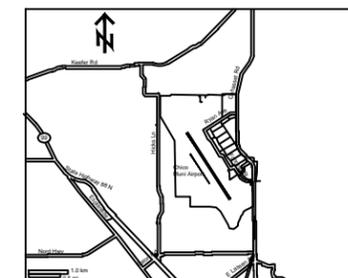
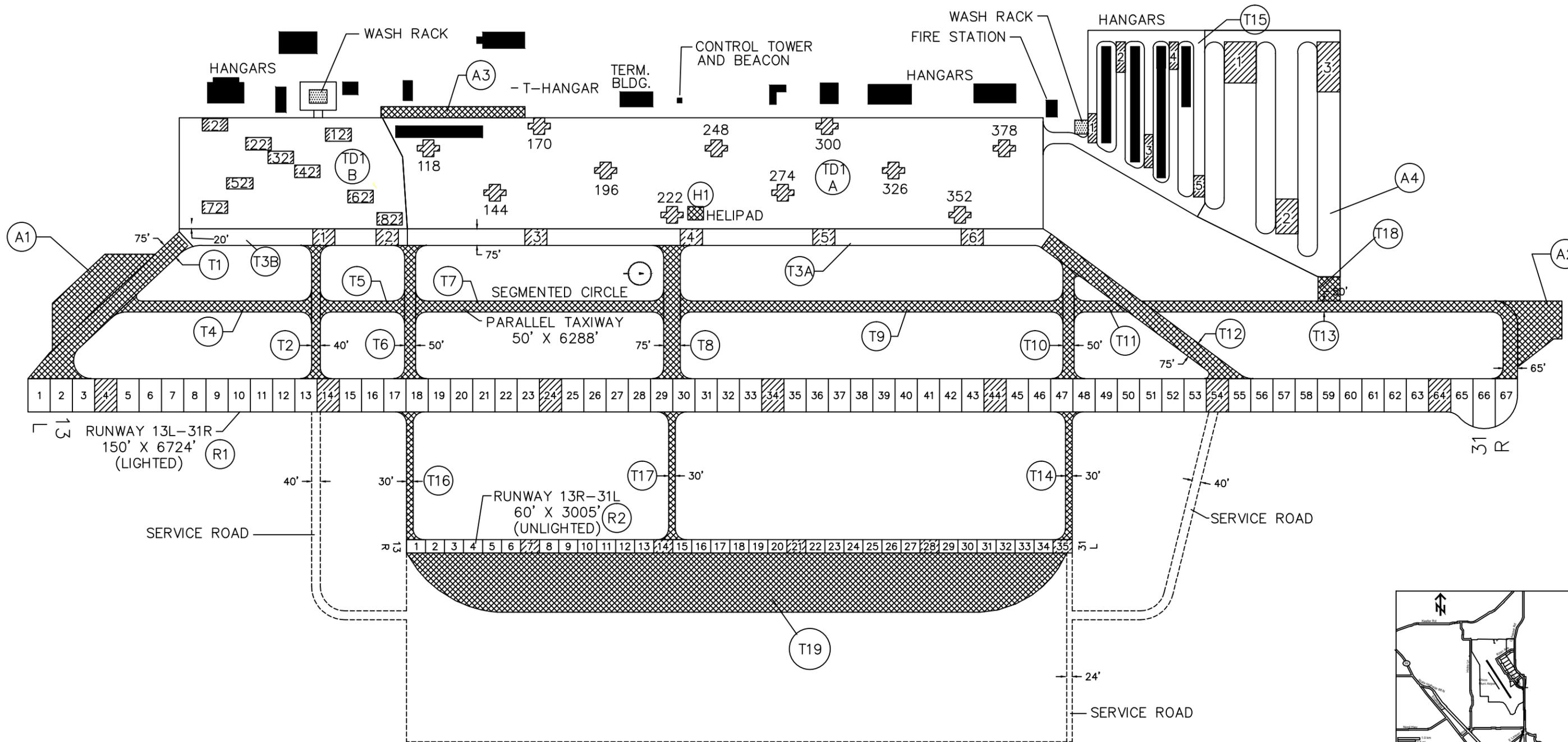
- R – Runways
- A – Aprons
- T – Taxiways
- H – Helipad
- TD – Tie-down Apron

Presented in Appendix A is an Inventory Report of all of the paved areas at the airport site. Included in this report is a listing of each branch, the general location of the branch at the airport site, the pavement ranking by use (primary, secondary or tertiary), the pavement type (Asphalt Concrete, Portland Cement Concrete), and the total area of the branch in square feet.

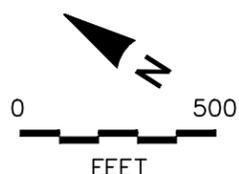
Field surveys consisted of visual observation of pavement distress at each branch. As noted on the Branch and Sample Designation Drawing, some of the survey was conducted on a random basis at predetermined locations with some of the survey areas chosen to represent the average condition for a branch. In all cases, greater than 10% of the total branch area was surveyed in accordance with FAA survey procedures. The two deviations from this general rule are for small-sized branches. In these cases, either 100% of the area was survey if the branch was very small or a minimum of 5,000 square feet of pavement was surveyed.

LEGEND

-  RANDOM SURVEY SAMPLE
-  REPRESENTATIVE SURVEY SAMPLE INSPECTED



Note:
 Do not scale from this drawing. This drawing is intended to serve as a schematic only. Although it is drawn to the scale shown, and all dimensions called out accordingly, dimensions of some features have been estimated.



NO.	REVISION	DATE

**CHICO MUNICIPAL AIRPORT
 BUTTE COUNTY, CALIFORNIA**

BRANCH AND SAMPLE DESIGNATION

KLEINFELDER
 8 Pasteur, Suite 190
 Irvine, CA 92618

AXIOM CORPORATION
 1322 Bell Avenue, Ste 1G
 Tustin, CA 92780

No. 000
 DATE: 4/25/07

A number of pavement distress types are considered when conducting surveys in accordance with FAA procedures. In addition to observing the distress types for each pavement branch, field survey crews also noted the level of severity for each of the distress types in accordance with FAA procedures. Pavement evaluation procedures define the level of severity as a function of distress type. In some cases, this can be fairly subjective with some distress types such as asphalt bleeding not assigned a level of severity. The levels of severity were noted as low, medium or high (L, M or H).

4.0 PCI CALCULATIONS

Observations of pavement distress type, extent, and severity as previously discussed were entered into the Micro Paver™ program for calculation of Pavement Condition Index (PCI) for each pavement branch. In general, the PCI calculation is simply a value of 100, less deduct points. Deduct points are standard values based on the type, extent, and severity of the distress observed. All of the Micro Paver™ (Version 5.3.3) PCI calculations for Chico Municipal Airport are presented in Appendix B. The condition of a pavement based on PCI is presented on Table 1.

**TABLE 1
 PAVEMENT CONDITION BASED ON PCI**

<u>PCI</u>	<u>Pavement Condition</u>
86-100	Excellent
71-85	Very Good
56-70	Good
41-55	Fair
26-40	Poor
11-25	Very Poor
0-10	Failed

The following plate shows the PCI conditions at Chico Municipal Airport for each pavement section. A PCI Frequency Report is also presented in Appendix B.

The weighted average overall PCI for Chico Municipal Airport is 48, or fair condition.*

The weighted average PCI for Runway R1 (Runway 13L/31R) is 78, or Very Good condition.*

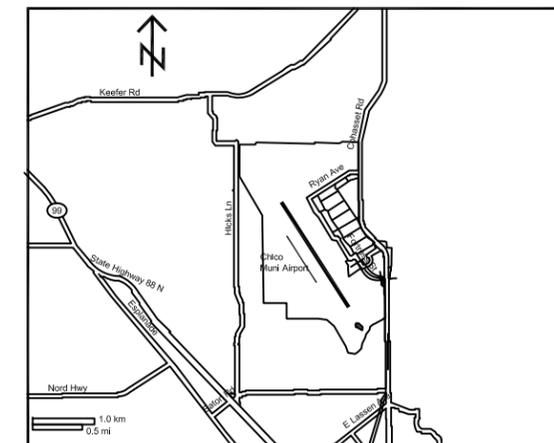
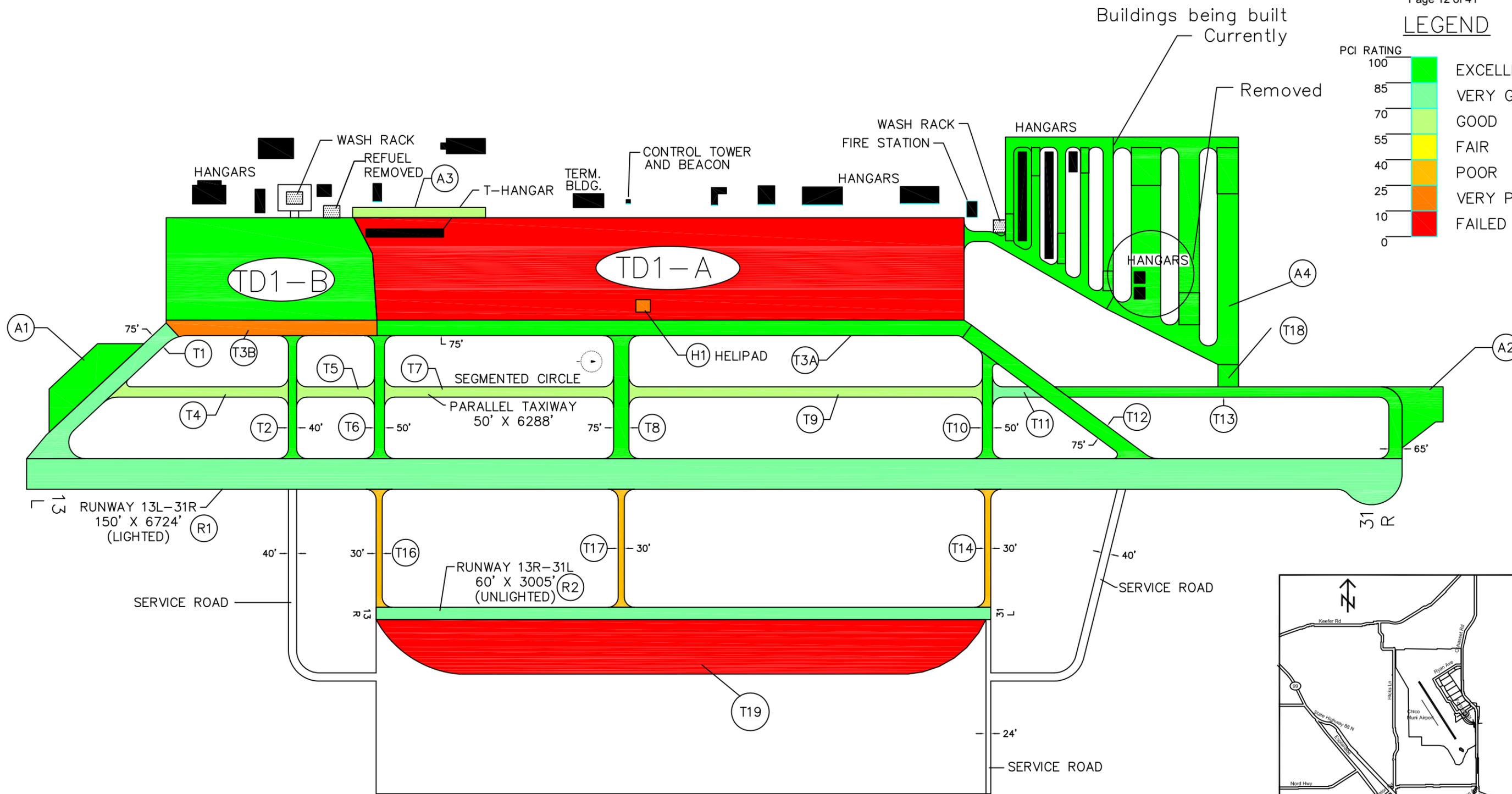
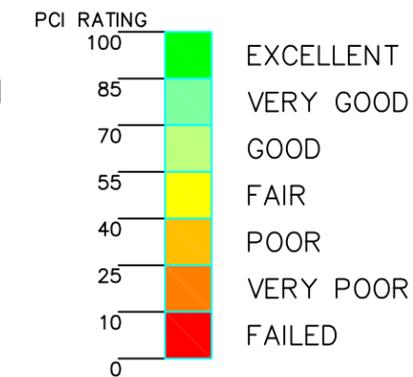
The weighted average PCI for Runway R2 (Runway 13R/31L) is 75, or Very Good condition.*

The weighted average overall PCI for the runway features is 77, or Very Good condition.*

* The PCI is calculated based on a weighted average. The equation for determining weighted average is:

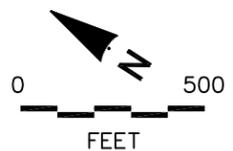
$$(PCI\ 1) \times (Area\ 1 / Area\ (1 + 2)) + (PCI\ 2) \times (Area\ 2 / Area\ (1 + 2)) = PCI\ (overall)$$

LEGEND



INDEX MAP
NO SCALE

Note:
 Do not scale from this drawing. This drawing is intended to serve as a schematic only. Although it is drawn to the scale shown, and all dimensions called out accordingly, dimensions of some features have been estimated.



NO.	REVISION	DATE

CHICO MUNICIPAL AIRPORT
 BUTTE COUNTY, CALIFORNIA

PCI RATING

KLEINFELDER 8 Pasteur, Suite 190 Irvine, CA 92618	AXIOM CORPORATION 1322 Bell Avenue, Ste 1G Tustin, CA 92780	No. 000
		DATE: 4/24/07

5.0 CURRENT PAVEMENT CONDITIONS

The current (2006) pavement conditions at Chico Municipal Airport are shown on the PCI Rating Plate. Presented in Table 2 are the changed conditions observed relative to the 1995 Survey.

**TABLE 2
 CHANGE IN PAVEMENT CONDITION 1995-2006**

BRANCH NAME	BRANCH ID	SECTION ID	PCI 1995	PCI 2006	COMMENTS
HOLDING APRON	A1	A	98	97	
HOLDING APRON	A2	A	98	96	
TIEDOWN APRON	A3	A	98	66	
FUTURE HANGAR APRON	A4	A	N/A	86	Initial Construction - 1999
HELIPAD 1	H1	A	11	12	
RUNWAY 13L/31R	R1	A	11	78	
RUNWAY 13R/31L	R2	A	59	75	Thin Overlay - 1999
CROSS-TAXIWAY 1	T1	A	59	47	
CROSS-TAXIWAY 2	T2	A	69	100	Surface Reconst. 2002
TAXIWAY 3	T3	A	6	12	
TAXIWAY 3	T3	B	N/A	100	Initial Construction - 2005
PARALLEL TAXIWAY 4	T4	A	69	69	

TABLE 2
CHANGE IN PAVEMENT CONDITION 1995-2006

BRANCH NAME	BRANCH ID	SECTION ID	PCI 1995	PCI 2006	COMMENTS
PARALLEL TAXIWAY 5	T5	A	69	69	
CROSS-TAXIWAY 6	T6	A	64	100	
PARALLEL TAXIWAY 7	T7	A	69	69	
CROSS-TAXIWAY 8	T8	A	69	100	Surface Reconst. 2002
PARALLEL TAXIWAY 9	T9	A	69	69	
CROSS-TAXIWAY 10	T10	A	67	100	Surface Reconst. 2002
PARALLEL TAXIWAY 11	T11	A	66	80	Possible maintenance unknown
CROSS-TAXIWAY 12	T12	A	61	100	Surface Reconst. 2002
PARALLEL TAXIWAY 13	T13	A	69	89	Possible maintenance unknown
CROSS-TAXIWAY 14	T14	A	59	38	
TAXIWAY 15	T15	A	71	85	Possible maintenance unknown
CROSS-TAXIWAY 16	T16	A	59	39	
CROSS TAXIWAY 17	T17	A	59	40	
TAXIWAY T	T18	A	N/A	95	Initial Construction - 1999
TAXIWAY 19	T19	A	N/A	10	

TABLE 2
CHANGE IN PAVEMENT CONDITION 1995-2006

BRANCH NAME	BRANCH ID	SECTION ID	PCI 1995	PCI 2006	COMMENTS
TIE-DOWN APRON 1	TD1	A	37	7	
TIE-DOWN APRON 1	TD1	B	N/A	100	Initial Construction - 2005

6.0 MAINTENANCE POLICY

Beginning on the first day of completion of construction of a new pavement, its condition begins to deteriorate. In addition to the action of traffic, environmental factors such as age hardening of asphalt cement and cycles of freeze-thaw and wet-dry reduce the performance characteristics of a pavement. An idealized life cycle of a pavement is presented on the following plate.

As noted, for about 75% of a pavement's life, a pavement is in fair to excellent condition and in relative terms, will require only \$1 to restore the approximate 40% loss in quality.

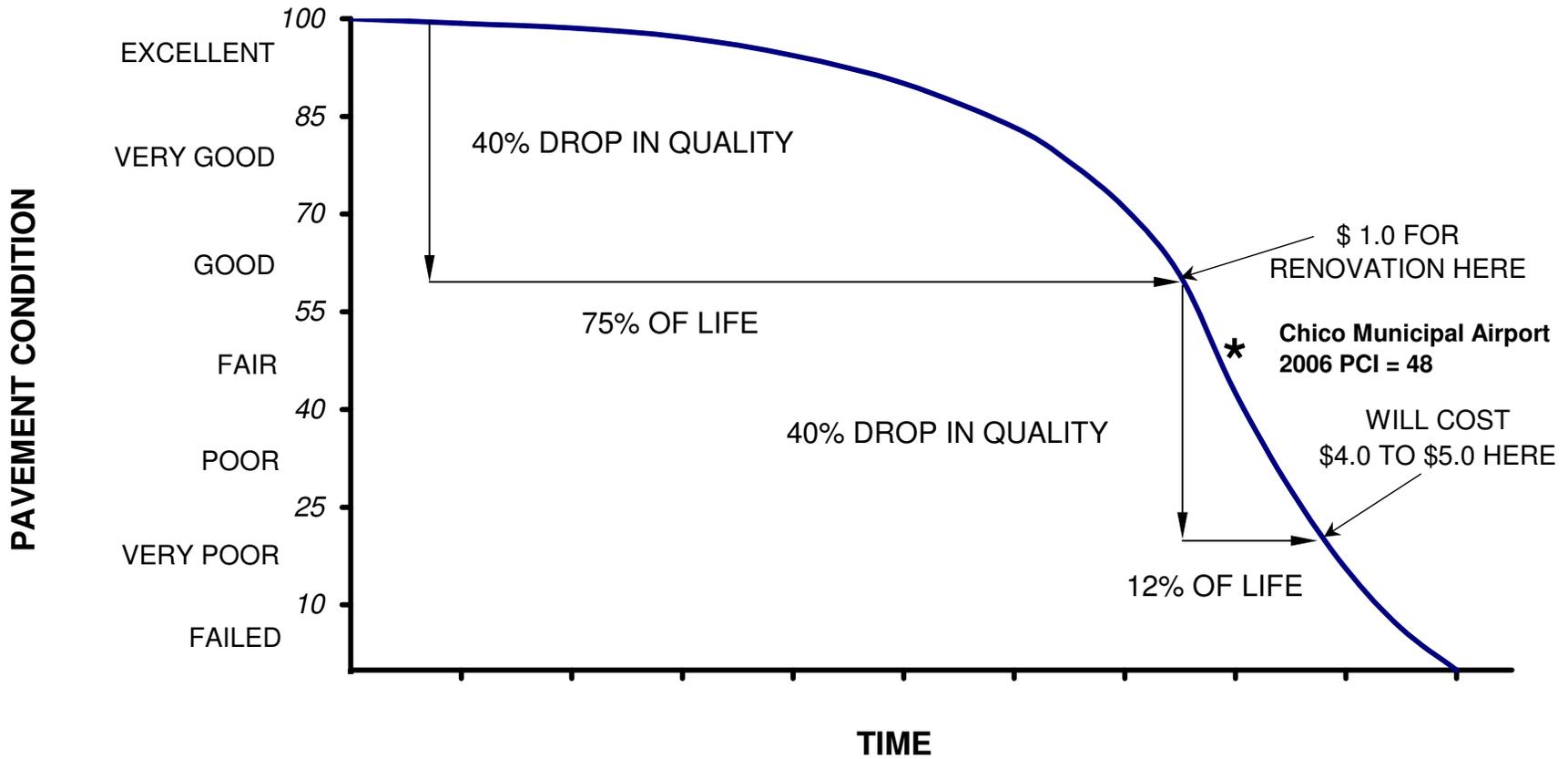
In contrast to the \$1 cost for preparing the first 40% drop in pavement quality, it will require \$4 to \$5 to renovate the second 40% drop in quality. Additionally, this second 40% drop will take place in 12% of the pavement's total life as compared to 75% of a pavement's life for the first drop of 40% in quality. In summary, for a relatively low cost (\$1 versus \$4 to \$5) maintenance expenditures in the early stages of a pavement's life are much more cost-effective than allowing a pavement to deteriorate too far prior to applying some type of maintenance procedure.

The Maintenance Policy adopted by Caltrans is presented in more detail in Appendix C. In general, there are two types of maintenance policies, local and global.

A local maintenance policy is defined as a maintenance procedure for addressing "local" distress conditions. An example of this would be the repair of a section of alligator cracking or the repair of a spalled concrete slab corner.

A global maintenance policy is adopted to address "global" pavement deficiencies. An example of this type of maintenance policy would be the application of a seal coat to a weathered asphalt pavement or the re-sealing of the joints of a concrete pavement.

The recommendations for Chico Municipal Airport presented in the following section of this report are based on these maintenance policies and unit costs presented in Appendix C. Noted that the unit costs presented in the appendix are state-wide averages and may vary based on local contractor experience and capabilities. Also, costs related to project planning, engineering, and construction monitoring are not included in the unit costs.



PAVEMENT LIFE CYCLE



KLEINFELDER

8 Pasteur Street, Suite 190
 Irvine, CA 92618

Project No.: 63A0052

Date: May, 2007

7.0 RECOMMENDATIONS

Presented in Section 7.1 of this report are the recommendations for pavement maintenance procedures and associated costs based on PCI conditions. Where no procedure is recommended, the PCI rating is currently at or above a level deemed acceptable under the adopted maintenance policy. Section 7.2 of this report presents future maintenance recommendations and costs for: 1) pavements currently at or above an acceptable PCI rating or 2) pavements requiring maintenance now and current budgets are inadequate for the current maintenance procedures, requiring the deferral of maintenance. Also presented is an estimate of the year when future maintenance procedures are anticipated.

7.1 CURRENT MAINTENANCE NEEDS

Based on the PCI values for each branch at the time the field survey was conducted (Table 2), the 2006 PCI was projected. Based on this projected PCI value, the current maintenance needs for Chico Municipal Airport are presented in Table 3.

**TABLE 3
 CURRENT MAINTENANCE NEEDS**

BRANCH ID	SECTION ID	PCI 2006	MAINTENANCE POLICY	ESTIMATED COST
A1	A	97	DO NOTHING	\$ -
A2	A	96	DO NOTHING	\$ -
A3	A	66	THICK (3") OVERLAY (OL-AF)	\$ 13,062
A4	A	86	FOG SEAL (SS-FS)	\$ 21,000
H1	A	12	RECONSTRUCT (CR-PC)	\$ 28,308
R1	A	78	FOG SEAL (SS-FS)	\$ 100,860
R2	A	75	FOG SEAL (SS-FS)	\$ 18,030
T1	A	47	THICK (3") OVERLAY (OL-AF)	\$ 137,025
T2	A	100	DO NOTHING	\$ -
T3	A	12	RECONSTRUCT (CR-PC)	\$ 1,959,750
T3	B	100	DO NOTHING	\$ -
T4	A	69	THICK (3") OVERLAY (OL-AF)	\$ 88,200
T5	A	69	THICK (3") OVERLAY (OL-AF)	\$ 39,900

TABLE 3
CURRENT MAINTENANCE NEEDS

BRANCH ID	SECTION ID	PCI 2006	MAINTENANCE POLICY	ESTIMATED COST
T6	A	100	DO NOTHING	\$ -
T7	A	69	THICK (3") OVERLAY (OL-AF)	\$ 116,550
T8	A	100	DO NOTHING	\$ -
T9	A	69	THICK (3") OVERLAY (OL-AF)	\$ 179,550
T10	A	100	DO NOTHING	\$ -
T11	A	80	FOG SEAL (SS-FS)	\$ 1,000
T12	A	100	DO NOTHING	\$ -
T13	A	89	DO NOTHING	\$ -
T14	A	38	THICK (3") OVERLAY (OL-AF)	\$ 37,800
T15	A	85	FOG SEAL (SS-FS)	\$ 14,000
T16	A	39	THICK (3") OVERLAY (OL-AF)	\$ 37,800
T17	A	40	THICK (3") OVERLAY (OL-AF)	\$ 37,800
T18	A	95	DO NOTHING	\$ -
T19	A	10	RECONSTRUCT (CRAC2)	\$ 980,000
TD1	A	7	RECONSTRUCT (CR-PC)	\$13,457,788
TD1	B	100	DO NOTHING	\$ -
Total Estimated Current Cost (\$)				\$17,268,422

Note that these estimated costs are based on the unit costs presented in Appendix C and are state-wide averages. Actual costs may vary based on local conditions.

If the current PCI Value suggests there is little or no maintenance required now and/or if current budgets will not allow for current maintenance needs, projected needs are presented on Table 4 in Section 7.2 of this report for those branches where maintenance is deferred.

7.2 FUTURE MAINTENANCE NEEDS

If the current maintenance needs presented in Section 7.1 of this report are either minimal or are deferred, Table 4 presents the projected future maintenance needs and associated costs. These needs and costs are based on the projected PCI for the year 2011 (5 years). Costs shown are in current 2006 dollars and are state-wide averages which may vary by geographical area and local contractor expertise.

TABLE 4
FUTURE MAINTENANCE NEEDS

BRANCH ID	SECTION ID	Projected 2011 PCI	MAINTENANCE POLICY	ESTIMATED COST
A1	A	96	DO NOTHING	\$ -
A2	A	95	DO NOTHING	\$ -
A3	A	54	THICK (3") OVERLAY (OL-AF)	\$ 13,062
A4	A	76	FOG SEAL (SS-FS)	\$ 21,000
H1	A	5	RECONSTRUCT (CR-PC)	\$ 28,308
R1	A	73	FOG SEAL (SS-FS)	\$ 100,860
R2	A	70	FOG SEAL (SS-FS)	\$ 18,030
T1	A	39	THICK (3") OVERLAY (OL-AF)	\$ 137,025
T2	A	84	FOG SEAL (SS-FS)	\$ 2,400
T3	A	5	RECONSTRUCT (CR-PC)	\$ 1,959,750
T3	B	84	FOG SEAL (SS-FS)	\$ 11,328
T4	A	62	THICK (3") OVERLAY (OL-AF)	\$ 88,200
T5	A	62	THICK (3") OVERLAY (OL-AF)	\$ 39,900
T6	A	84	FOG SEAL (SS-FS)	\$ 3,000
T7	A	62	THICK (3") OVERLAY (OL-AF)	\$ 116,550
T8	A	84	FOG SEAL (SS-FS)	\$ 4,500
T9	A	62	THICK (3") OVERLAY (OL-AF)	\$ 179,550

TABLE 4
FUTURE MAINTENANCE NEEDS

BRANCH ID	SECTION ID	Projected 2011 PCI	MAINTENANCE POLICY	ESTIMATED COST
T10	A	84	DO NOTHING	\$ 2,400
T11	A	75	DO NOTHING	\$ 1,000
T12	A	84	THICK (3") OVERLAY (OL-AF)	\$ 7,800
T13	A	87	FOG SEAL (SS-FS)	\$ -
T14	A	27	RECONSTRUCT (CR-PC)	\$ 37,800
T15	A	82	FOG SEAL (SS-FS)	\$ 14,000
T16	A	28	FOG SEAL (SS-FS)	\$ 37,800
T17	A	29	THICK (3") OVERLAY (OL-AF)	\$ 37,800
T18	A	91	FOG SEAL (SS-FS)	\$ -
T19	A	0	RECONSTRUCT (CR-PC)	\$ 980,000
TD1	A	0	FOG SEAL (SS-FS)	\$13,457,788
TD1	B	84	THICK (3") OVERLAY (OL-AF)	\$ 44,640
Total Estimated Current Cost (\$)				\$17,344,490

APPENDIX A
Inventory Report

Section Inventory Report

Chico Municipal Airport

Report Network Name	Network ID	Branch Name	Branch ID	Section ID	From	To	Branch Use	Length (ft)	Width (ft)	True Area (sf)	Surface Type	Section Rank	Last Construction Date
Chico Municipal Airport, Butte County	CIC	HOLDING APRON	A1	A	ON MAP		APRON	0	.	62,918	AC	P	6/1/91
Chico Municipal Airport, Butte County	CIC	HOLDING APRON	A2	A	ON MAP		APRON	0	.	46,836	AC	P	6/1/91
Chico Municipal Airport, Butte County	CIC	TIEDOWN APRON	A3	A	NORTH OF TD1		APRON	0	.	6,220	AC	P	6/1/91
Chico Municipal Airport, Butte County	CIC	Future Hangar Apron	A4	A	Existing Hangar Apron T15	Taxiway T	APRON	7,000	30	210,000	AAC	T	1/1/99
Chico Municipal Airport, Butte County	CIC	HELIPAD 1	H1	A	ON MAP		HELIPAD	65	65	4,225	PCC	P	7/1/42
Chico Municipal Airport, Butte County	CIC	RUNWAY 13L/31R	R1	A	STATION 0+00	STATION 67+24	RUNWAY	6,724	150	1,008,600	AC	P	7/1/84
Chico Municipal Airport, Butte County	CIC	RUNWAY 13R/31L	R2	A	STATION 0+00	STATION 30+05	RUNWAY	3,005	60	180,300	AAC	S	7/1/78
Chico Municipal Airport, Butte County	CIC	CROSS-TAXIWAY 1	T1	A	RUNWAY 13L/31R	TAXIWAY 3	TAXIWAY	870	75	65,250	AC	S	7/1/70
Chico Municipal Airport, Butte County	CIC	CROSS-TAXIWAY 2	T2	A	RUNWAY 13L/31R	TAXIWAY 3	TAXIWAY	600	40	24,000	AC	T	1/1/02
Chico Municipal Airport, Butte County	CIC	TAXIWAY 3	T3	A	STATION 0+00	STATION 39+00	TAXIWAY	3,900	75	292,500	PCC	S	7/1/42
Chico Municipal Airport, Butte County	CIC	TAXIWAY 3	T3	B	Taxiway G	Taxiway H	TAXIWAY	960	118	113,280	AAC	S	7/1/05
Chico Municipal Airport, Butte County	CIC	PARALLEL TAXIWAY 4	T4	A	CROSS- TAXIWAY 1	CROSS-TAXIWAY 2	TAXIWAY	840	50	42,000	AC	P	7/1/83
Chico Municipal Airport, Butte County	CIC	PARALLEL TAXIWAY 5	T5	A	CROSS-TAXIWAY 2	CROSS-TAXIWAY 6	TAXIWAY	380	50	19,000	AC	P	7/1/83
Chico Municipal Airport, Butte County	CIC	CROSS-TAXIWAY 6	T6	A	RUNWAY 13L/31R	TAXIWAY 3	TAXIWAY	600	50	30,000	AAC	T	1/1/02
Chico Municipal Airport, Butte County	CIC	PARALLEL TAXIWAY 7	T7	A	CROSS-TAXIWAY 6	CROSS-TAXIWAY 8	TAXIWAY	1,110	50	55,500	AC	P	7/1/83
Chico Municipal Airport, Butte County	CIC	CROSS-TAXIWAY 8	T8	A	RUNWAY 13L/31R	TAXIWAY 3	TAXIWAY	600	75	45,000	AAC	T	1/1/02
Chico Municipal Airport, Butte County	CIC	PARALLEL TAXIWAY 9	T9	A	CROSS-TAXIWAY 8	CROSS-TAXIWAY 10	TAXIWAY	1,710	50	85,500	AC	P	7/1/83
Chico Municipal Airport, Butte County	CIC	CROSS-TAXIWAY 10	T10	A	RUNWAY 13L/31R	TAXIWAY 10	TAXIWAY	480	50	24,000	AAC	T	1/1/02
Chico Municipal Airport, Butte County	CIC	PARALLEL TAXIWAY 11	T11	A	CROSS-TAXIWAY 10	CROSS-TAXIWAY 12	TAXIWAY	200	50	10,000	AC	P	7/1/83
Chico Municipal Airport, Butte County	CIC	CROSS-TAXIWAY 12	T12	A	RUNWAY 13L/31R	TAXIWAY 3	TAXIWAY	1,040	75	78,000	AAC	S	1/1/02
Chico Municipal Airport, Butte County	CIC	PARALLEL TAXIWAY 13	T13	A	CROSS-TAXIWAY 12	RUNWAY 13L/31R	TAXIWAY	2,030	50	101,500	AC	P	7/1/77
Chico Municipal Airport, Butte County	CIC	CROSS-TAXIWAY 14	T14	A	RUNWAY 13L/31R	RUNWAY 13R/31L	TAXIWAY	600	30	18,000	AAC	P	7/1/77
Chico Municipal Airport, Butte County	CIC	TAXIWAY 15	T15	A	ON MAP		TAXIWAY	7,000	20	140,000	AC	S	7/1/83
Chico Municipal Airport, Butte County	CIC	CROSS-TAXIWAY 16	T16	A	RUNWAY 13L/31R	RUNWAY 13R/31L	TAXIWAY	600	30	18,000	AAC	S	7/1/77
Chico Municipal Airport, Butte County	CIC	CROSS-TAXIWAY 17	T17	A	RUNWAY 13L/31R	RUNWAY 13R/31L	TAXIWAY	600	30	18,000	AAC	T	7/1/77
Chico Municipal Airport, Butte County	CIC	Taxiway T	T18	A	Taxiway A (T13)	Future Hangar Apron (A4)	TAXIWAY	213	40	8,520	AAC	S	1/1/99
Chico Municipal Airport, Butte County	CIC		T19	A	Runway 31L	Runway 13R	TAXIWAY	3,500	50	175,000	AAC	T	1/1/80
Chico Municipal Airport, Butte County	CIC	TIE-DOWN APRON 1	TD1	A	ON MAP		APRON	1	1	2,008,625	PCC	P	7/1/88
Chico Municipal Airport, Butte County	CIC	TIE-DOWN APRON 1	TD1	B	TDIA	End	APRON	960	465	446,400	AAC	S	1/1/05

Airport GPS Data

Chico Municipal Airport

Name	Network ID	Branch ID	Section ID	Sample Number	Latitude	Longitude
Chico Municipal Airport, Butte County	CIC	A1	A	1	-121° 59' 32.43"	39° 10' 43.75"
Chico Municipal Airport, Butte County	CIC	A2	A	1	-121° 59' 28.9"	39° 10' 39.47"
Chico Municipal Airport, Butte County	CIC	A3	A	1	-121° 59' 37.4"	39° 10' 54.28"
Chico Municipal Airport, Butte County	CIC	A4	A	1	-121° 50' 56.09"	39° 47' 34.83"
Chico Municipal Airport, Butte County	CIC	A4	A	2	-121° 51' 2.79"	39° 47' 30.1"
Chico Municipal Airport, Butte County	CIC	A4	A	3	-121° 50' 54.31"	39° 47' 32.8"
Chico Municipal Airport, Butte County	CIC	H1	A	1	-121° 51' 20.51"	39° 47' 51.56"
Chico Municipal Airport, Butte County	CIC	R1	A	4	-121° 51' 48.46"	39° 48' 9.32"
Chico Municipal Airport, Butte County	CIC	R1	A	14	-121° 51' 34.84"	39° 47' 52.71"
Chico Municipal Airport, Butte County	CIC	R1	A	24	-121° 51' 30.84"	39° 47' 48.51"
Chico Municipal Airport, Butte County	CIC	R1	A	34	-121° 51' 27.83"	39° 47' 44.31"
Chico Municipal Airport, Butte County	CIC	R1	A	44	-121° 51' 20.95"	39° 47' 36"
Chico Municipal Airport, Butte County	CIC	R1	A	54	-121° 51' 14.05"	39° 47' 27.69"
Chico Municipal Airport, Butte County	CIC	R1	A	64	-121° 51' 7.19"	39° 47' 19.42"
Chico Municipal Airport, Butte County	CIC	R2	A	7	-121° 51' 42.69"	39° 47' 49.85"
Chico Municipal Airport, Butte County	CIC	R2	A	14	-121° 51' 41.48"	39° 47' 48.4"
Chico Municipal Airport, Butte County	CIC	R2	A	21	-121° 51' 36.99"	39° 47' 42.96"
Chico Municipal Airport, Butte County	CIC	R2	A	28	-121° 51' 31.51"	39° 47' 36.31"
Chico Municipal Airport, Butte County	CIC	R2	A	35	-121° 51' 26.73"	39° 47' 30.55"
Chico Municipal Airport, Butte County	CIC	T1	A	1	-121° 51' 43.78"	39° 48' 11.07"
Chico Municipal Airport, Butte County	CIC	T10	A	1	-121° 51' 15.72"	39° 47' 34.63"
Chico Municipal Airport, Butte County	CIC	T11	A	1	-121° 51' 13.47"	39° 47' 34.31"
Chico Municipal Airport, Butte County	CIC	T12	A	1	-121° 51' 12.3"	39° 47' 34.87"
Chico Municipal Airport, Butte County	CIC	T12	A	2	-121° 51' 12.59"	39° 47' 31.21"
Chico Municipal Airport, Butte County	CIC	T13	A	1	-121° 51' 2.26"	39° 47' 17.7"
Chico Municipal Airport, Butte County	CIC	T13	A	2	-121° 51' 14.3"	39° 47' 24.3"
Chico Municipal Airport, Butte County	CIC	T14	A	1	-121° 51' 25.41"	39° 47' 30.22"
Chico Municipal Airport, Butte County	CIC	T15	A	1	-121° 51' 3.4"	39° 47' 38.98"
Chico Municipal Airport, Butte County	CIC	T15	A	2	-121° 51' 0.17"	39° 47' 39.31"
Chico Municipal Airport, Butte County	CIC	T15	A	3	-121° 51' 3.19"	39° 47' 36.4"
Chico Municipal Airport, Butte County	CIC	T15	A	4	-121° 50' 58.67"	39° 47' 37.24"
Chico Municipal Airport, Butte County	CIC	T15	A	5	-121° 51' 3.02"	39° 47' 33.8"
Chico Municipal Airport, Butte County	CIC	T16	A	1	-121° 51' 42.84"	39° 47' 55.85"
Chico Municipal Airport, Butte County	CIC	T17	A	1	-121° 51' 37.28"	39° 47' 45.01"
Chico Municipal Airport, Butte County	CIC	T18	A	1	-121° 51' 5.56"	39° 47' 27.17"
Chico Municipal Airport, Butte County	CIC	T19	A	3	-121° 51' 27.9"	39° 47' 28.94"
Chico Municipal Airport, Butte County	CIC	T19	A	13	-121° 51' 32.28"	39° 47' 32.58"
Chico Municipal Airport, Butte County	CIC	T19	A	23	-121° 51' 39.36"	39° 47' 41.17"
Chico Municipal Airport, Butte County	CIC	T19	A	32	-121° 51' 46.56"	39° 47' 49.95"
Chico Municipal Airport, Butte County	CIC	T2	A	1	-121° 51' 35.6"	39° 48' 1.47"
Chico Municipal Airport, Butte County	CIC	T3	A	3	-121° 51' 26.68"	39° 47' 56.45"
Chico Municipal Airport, Butte County	CIC	T3	A	4	-121° 51' 22.59"	39° 47' 51.37"
Chico Municipal Airport, Butte County	CIC	T3	A	5	-121° 51' 20.16"	39° 47' 48.47"
Chico Municipal Airport, Butte County	CIC	T3	A	6	-121° 51' 14.42"	39° 47' 41.25"
Chico Municipal Airport, Butte County	CIC	T3	B	1	-121° 51' 34.75"	39° 48' 5.49"
Chico Municipal Airport, Butte County	CIC	T3	B	2	-121° 51' 32.14"	39° 48' 2.41"
Chico Municipal Airport, Butte County	CIC	T4	A	1	-121° 51' 39.45"	39° 48' 5.74"
Chico Municipal Airport, Butte County	CIC	T5	A	1	-121° 51' 35.48"	39° 48' 1.06"
Chico Municipal Airport, Butte County	CIC	T6	A	1	-121° 51' 34.04"	39° 47' 58.58"

Airport GPS Data

Chico Municipal Airport

Name	Network ID	Branch ID	Section ID	Sample Number	Latitude	Longitude
Chico Municipal Airport, Butte County	CIC	T7	A	1	-121° 51' 28.05"	39° 47' 51.98"
Chico Municipal Airport, Butte County	CIC	T7	A	2	-121° 51' 30.27"	39° 47' 54.76"
Chico Municipal Airport, Butte County	CIC	T8	A	1	-121° 51' 16.19"	39° 47' 37.61"
Chico Municipal Airport, Butte County	CIC	T9	A	1	-121° 51' 24.86"	39° 47' 50.97"
Chico Municipal Airport, Butte County	CIC	T9	A	2	-121° 51' 19.58"	39° 47' 41.69"
Chico Municipal Airport, Butte County	CIC	TD1	A	118	-121° 51' 26.19"	39° 48' 3.24"
Chico Municipal Airport, Butte County	CIC	TD1	A	144	-121° 51' 25.81"	39° 47' 58.17"
Chico Municipal Airport, Butte County	CIC	TD1	A	170	-121° 51' 20.62"	39° 47' 58.4"
Chico Municipal Airport, Butte County	CIC	TD1	A	196	-121° 51' 21.45"	39° 47' 55.33"
Chico Municipal Airport, Butte County	CIC	TD1	A	222	-121° 51' 21.41"	39° 47' 52.42"
Chico Municipal Airport, Butte County	CIC	TD1	A	248	-121° 51' 17.5"	39° 47' 48.79"
Chico Municipal Airport, Butte County	CIC	TD1	A	274	-121° 51' 17.65"	39° 47' 47.87"
Chico Municipal Airport, Butte County	CIC	TD1	A	300	-121° 51' 12.8"	39° 47' 48.47"
Chico Municipal Airport, Butte County	CIC	TD1	A	326	-121° 51' 12.53"	39° 47' 43.04"
Chico Municipal Airport, Butte County	CIC	TD1	A	352	-121° 51' 11.23"	39° 47' 39.78"
Chico Municipal Airport, Butte County	CIC	TD1	A	378	-121° 51' 7"	39° 47' 41.1"
Chico Municipal Airport, Butte County	CIC	TD1	B	2	-121° 51' 31.59"	39° 48' 11.84"
Chico Municipal Airport, Butte County	CIC	TD1	B	12	-121° 51' 28.67"	39° 48' 7.29"
Chico Municipal Airport, Butte County	CIC	TD1	B	22	-121° 51' 31.29"	39° 48' 9.51"
Chico Municipal Airport, Butte County	CIC	TD1	B	32	-121° 51' 31.25"	39° 48' 8.44"
Chico Municipal Airport, Butte County	CIC	TD1	B	42	-121° 51' 31.03"	39° 48' 7.38"
Chico Municipal Airport, Butte County	CIC	TD1	B	52	-121° 51' 31.48"	39° 48' 6.17"
Chico Municipal Airport, Butte County	CIC	TD1	B	62	-121° 51' 30.75"	39° 48' 5.21"
Chico Municipal Airport, Butte County	CIC	TD1	B	72	-121° 51' 35.4"	39° 48' 9.91"
Chico Municipal Airport, Butte County	CIC	TD1	B	82	-121° 51' 31.07"	39° 48' 3.77"
Chico Municipal Airport, Butte County	CIC	R1		Corner 1	-121° 51' 50.12"	39° 48' 12.64"
Chico Municipal Airport, Butte County	CIC	R1		Corner 2	-121° 51' 51.77"	39° 48' 11.9"
Chico Municipal Airport, Butte County	CIC	R1		Corner 3	-121° 51' 5.28"	39° 47' 15.74"
Chico Municipal Airport, Butte County	CIC	R1		Corner 4	-121° 51' 3.65"	39° 47' 16.52"
Chico Municipal Airport, Butte County	CIC	R2		Corner 1	-121° 51' 46.28"	39° 47' 54.46"
Chico Municipal Airport, Butte County	CIC	R2		Corner 2	-121° 51' 46.96"	39° 47' 54.11"
Chico Municipal Airport, Butte County	CIC	R2		Corner 3	-121° 51' 26.47"	39° 47' 29.71"
Chico Municipal Airport, Butte County	CIC	R2		Corner 4	-121° 51' 25.75"	39° 47' 29.35"

APPENDIX B

PCI Report and PCI Frequency Reports

Date: 4 /30/2007

Section Condition ReportHill International, Inc.
Agreement No. 63A0061
Attachment C
Page 27 of 41
1 of 3

Pavement Database: NetworkID: CIC

Branch ID	Section ID	Last Const. Date	Surface	Use	Rank	Lanes	True Area (SqFt)	Last Inspection Date	Age At Inspection	PCI
A1 (HOLDING APRON)	A	06/01/1991	AC	APRON	P	0	62,918.00	08/24/2006	15	97.00
A2 (HOLDING APRON)	A	06/01/1991	AC	APRON	P	0	46,836.00	08/24/2006	15	96.00
A3 (TIEDOWN APRON)	A	06/01/1991	AC	APRON	P	0	6,220.00	08/23/2006	15	66.00
A4 (Future Hangar Apron)	A	01/01/1999	AAC	APRON	T	0	210,000.00	08/23/2006	7	86.00
H1 (HELIPAD 1)	A	07/01/1942	PCC	HELIPAD	P	0	4,225.00	08/24/2006	64	12.00
R1 (RUNWAY 13L/31R)	A	07/01/1984	AC	RUNWAY	P	0	1,008,600.00	08/24/2006	22	78.00
R2 (RUNWAY 13R/31L)	A	07/01/1978	AAC	RUNWAY	S	0	180,300.00	08/24/2006	28	75.00
T1 (CROSS-TAXIWAY 1)	A	07/01/1970	AC	TAXIWAY	S	0	65,250.00	08/24/2006	36	47.00
T10 (CROSS-TAXIWAY 10)	A	01/01/2002	AAC	TAXIWAY	T	0	24,000.00	08/24/2006	4	100.00
T11 (PARALLEL TAXIWAY 11)	A	07/01/1983	AC	TAXIWAY	P	0	10,000.00	08/24/2006	23	80.00
T12 (CROSS-TAXIWAY 12)	A	01/01/2002	AAC	TAXIWAY	S	0	78,000.00	08/24/2006	4	100.00
T13 (PARALLEL TAXIWAY 13)	A	07/01/1977	AC	TAXIWAY	P	0	101,500.00	08/24/2006	29	89.00
T14 (CROSS-TAXIWAY 14)	A	07/01/1977	AAC	TAXIWAY	P	0	18,000.00	08/24/2006	29	38.00
T15 (TAXIWAY 15)	A	07/01/1983	AC	TAXIWAY	S	0	140,000.00	08/23/2006	23	85.00
T16 (CROSS-TAXIWAY 16)	A	07/01/1977	AAC	TAXIWAY	S	0	18,000.00	08/24/2006	29	39.00
T17 (CROSS-TAXIWAY 17)	A	07/01/1977	AAC	TAXIWAY	T	0	18,000.00	08/24/2006	29	40.00
T18 (Taxiway T)	A	01/01/1999	AAC	TAXIWAY	S	0	8,520.00	08/24/2006	7	95.00
T19 ()	A	01/01/1980	AAC	TAXIWAY	T	0	175,000.00	08/24/2006	26	10.00
T2 (CROSS-TAXIWAY 2)	A	01/01/2002	AC	TAXIWAY	T	0	24,000.00	08/24/2006	4	100.00
T3 (TAXIWAY 3)	A	07/01/1942	PCC	TAXIWAY	S	0	292,500.00	08/24/2006	64	12.00
T3 (TAXIWAY 3)	B	07/01/2005	AAC	TAXIWAY	S	0	113,280.00	08/24/2006	1	100.00
T4 (PARALLEL TAXIWAY 4)	A	07/01/1983	AC	TAXIWAY	P	0	42,000.00	08/24/2006	23	69.00
T5 (PARALLEL TAXIWAY 5)	A	07/01/1983	AC	TAXIWAY	P	0	19,000.00	08/24/2006	23	69.00
T6 (CROSS-TAXIWAY 6)	A	01/01/2002	AAC	TAXIWAY	T	0	30,000.00	08/24/2006	4	100.00

Date: 4 /30/2007

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Pavement Database: NetworkID: CIC

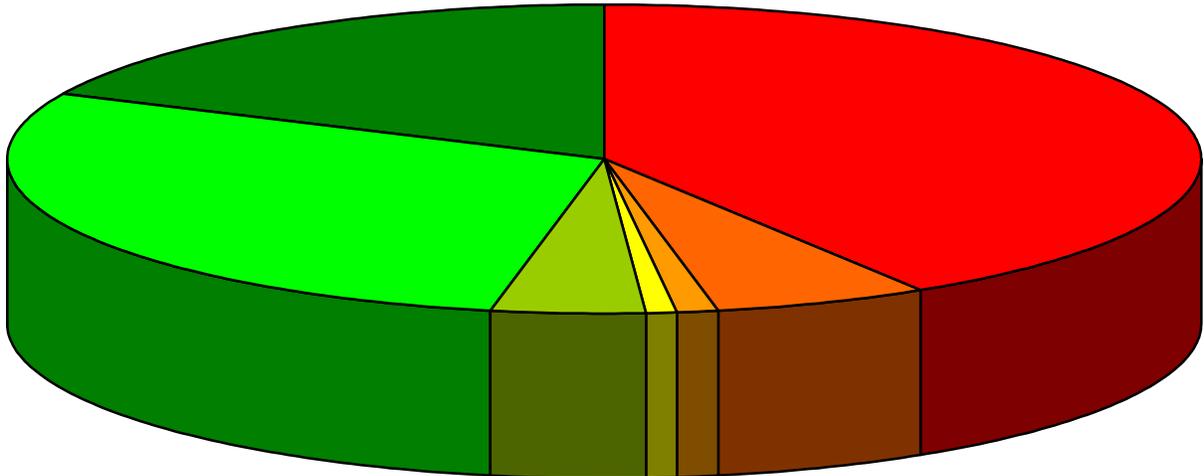
Branch ID	Section ID	Last Const. Date	Surface	Use	Rank	Lanes	True Area (SqFt)	Last Inspection Date	Age At Inspection	PCI
T7 (PARALLEL TAXIWAY 7)	A	07/01/1983	AC	TAXIWAY	P	0	55,500.00	08/24/2006	23	69.00
T8 (CROSS-TAXIWAY 8)	A	01/01/2002	AAC	TAXIWAY	T	0	45,000.00	08/24/2006	4	100.00
T9 (PARALLEL TAXIWAY 9)	A	07/01/1983	AC	TAXIWAY	P	0	85,500.00	08/24/2006	23	69.00
TD1 (TIE-DOWN APRON 1)	A	07/01/1988	PCC	APRON	P	0	2,008,625.01	08/23/2006	18	7.00
TD1 (TIE-DOWN APRON 1)	B	01/01/2005	AAC	APRON	S	0	446,400.00	08/23/2006	1	100.00

Date: 4 /30/2007

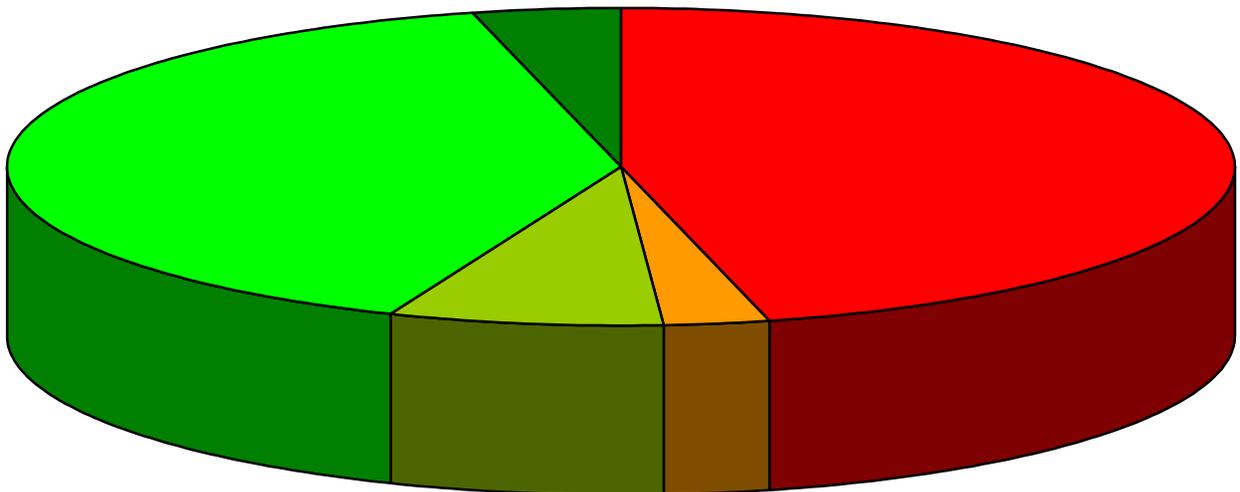
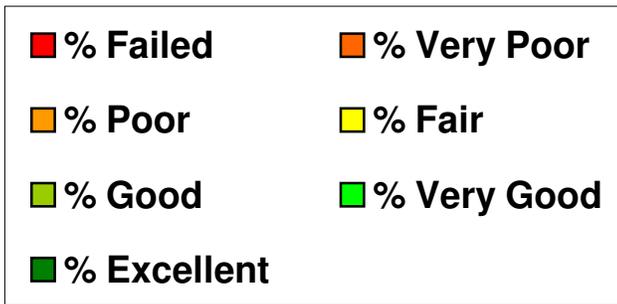
Section Condition Report*Pavement Database:*

Age Category	Average Age At Inspection	Total Area (SqFt)	Number of Sections	Arithmetic Average PCI	PCI Standard Deviation	Weighted Average PCI
0-02	1.00	559,680.00	2	100.00	0.00	100.00
03-05	4.00	201,000.00	5	100.00	0.00	100.00
06-10	7.00	218,520.00	2	90.50	4.50	86.35
11-15	15.00	115,974.00	3	86.33	14.38	94.93
16-20	18.00	2,008,625.01	1	7.00	0.00	7.00
21-25	22.86	1,360,600.01	7	74.14	6.24	77.40
26-30	28.33	510,800.00	6	48.50	26.13	51.71
36-40	36.00	65,250.00	1	47.00	0.00	47.00
over 40	64.00	296,725.00	2	12.00	0.00	12.00
All	20.45	5,337,174.02	29	69.93	30.56	48.41

PCI Frequency Report Chico Municipal Airport



2006 PCI Condition Frequency



2011 PCI Condition Frequency

APPENDIX C

Maintenance Policy

APPENDIX C

MAINTENANCE POLICY

BACKGROUND: Each airport included in the APMS survey receives a field evaluation to identify pavement distresses defined in Advisory Circular (AC) 150/5380-6, "Guidelines and Procedures for Maintenance of Airport Pavements." Field evaluations are input into the MicroPAVER™ program and are the basis for determining condition of all or portions of the airfield pavements.

This appendix describes local and global (entire section) maintenance and repair policies, work type codes, and unit costs input into the program for each type of distress. This data is needed to produce the Network Maintenance Report (estimated cost of routine repair to all or a portion of the pavement network), the Maintenance and Repair Report (estimated cost of global repairs and selected global repairs for specific pavement sections), and other reports that can be used to program airfield pavement maintenance.

Our approach considers the "network-level" analysis of the APMS survey. The network analysis is intended to provide a snap shot of the condition of the statewide general aviation airports as a system rather than on an individual basis. Therefore, we have developed maintenance and repair policies that represent a typical approach rather than a project specific approach.

Our approach to cost estimating uses a similar "network-level" analysis. We developed unit costs for reactive, one-time as well as programmed global/local maintenance and repairs policies using cost data compiled by Caltrans. The specific source is the 2006 Contract Cost Data which is a compilation of construction costs statewide throughout all of 2006. Though the data is from highway construction projects, we judged the costs to be representative given many general aviation projects are constructed using Caltrans specifications rather than FAA specifications. The costs are averaged across the state and represent average values. The actual costs for each individual airport will vary depending on the vibrancy of the local construction market, availability of suitable aggregates, labor conditions, etc. Again, we judge the use of average statewide unit costs is appropriate for the network-level analysis of the APMS process.

The policies, work methods, and unit costs used to develop the 2006/2007 APMS are intended to reflect general maintenance and repair practices using conservative cost estimates. The exact method of maintenance and repair and accurate estimate of cost for each specific pavement project should be determined by engineering investigation and design.

LOCAL MAINTENANCE POLICY: Three local maintenance policies have been established as shown in Tables C-1, C-2 and C-3. Policy 01 is for flexible (asphalt) pavements used by aircraft with gross weights \leq 30,000 pounds. Policy 02 is for flexible pavements used by aircraft with gross weights $>$ 30,000 pounds. Policy 03 is for rigid (concrete) pavements for all aircraft gross weights. These policies apply to primary, secondary, and tertiary pavements collectively.

GLOBAL MAINTENANCE POLICY: Global maintenance policies have been established as shown in Table C-4. These policies are applied to pavement sections based on types of pavement distresses and pavement condition index (PCI) determined by field evaluation.

WORK-TYPE TABLES: Work-type codes, descriptions, unit costs, and other data are shown in Table C-5. This information expands on work codes listed in local and global maintenance policies in Tables C-1 through C-4.

TABLE C-1

Local Maintenance Policy No. 01

Flexible Pavements

Aircraft with Maximum Gross Weight of ≤ 30,000 lbs.

Code	Distress	Sev	Work Type & Description	Unit Cost	Unit
41	Alligator Crack	L	PAAD1 Patch – 3” AC Deep	\$ 2.20	SF
41	Alligator Crack	M	PAAD1 Patch – 3” AC Deep	\$ 2.20	SF
41	Alligator Crack	H	PAAD1 Patch – 3” AC Deep	\$ 2.20	SF
42	Bleeding	--	NOPOL No Lcl Maint Policy	0	SF
43	Block Crack	L	NOPOL No Lcl Maint Policy	0	SF
43	Block Crack	M	NOPOL No Lcl Maint Policy	0	SF
43	Block Crack	H	NOPOL No Lcl Maint Policy	0	SF
44	Corrugation	L	NOPOL No Lcl Maint Policy	0	SF
44	Corrugation	M	PAAD1 Patch – 3” AC Deep	\$ 2.20	SF
44	Corrugation	H	PAAD1 Patch – 3” AC Deep	\$ 2.20	SF
45	Depression	L	NOPOL No Lcl Maint Policy	0	SF
45	Depression	M	PAAD1 Patch – 3” AC Deep	\$ 2.20	SF
45	Depression	H	PAAD1 Patch – 3” AC Deep	\$ 2.20	SF
46	Jet Blast	--	NOPOL No Lcl Maint Policy	0	SF
47	Joint Refl Cr	L	NOPOL No Lcl Maint Policy	0	LF
47	Joint Refl Cr	M	NOPOL No Lcl Maint Policy	0	LF
47	Joint Refl Cr	H	CS-RC Crack Seal, Refl Cr	\$0.75	LF
48	Long & Trans Cr	L	NOPOL No Lcl Maint Policy	0	LF
48	Long & Trans Cr	M	CS-RC Crack Seal, L & T Cr	\$0.75	LF
48	Long & Trans Cr	H	CS-RC Crack Seal, L & T Cr	\$0.75	LF
49	Oil Spillage	L	NOPOL No Lcl Maint Policy	0	SF
50	Patching	L	NOPOL No Lcl Maint Policy	0	SF
50	Patching	M	NOPOL No Lcl Maint Policy	0	SF
50	Patching	H	PAAD1 Patch – 3” AC Deep	\$ 2.20	SF
51	Polished Aggreg	--	NOPOL No Lcl Maint Policy	0	SF
52	Weath/Raveling	L	NOPOL No Lcl Maint Policy	0	SF
52	Weath/Raveling	M	NOPOL No Lcl Maint Policy	0	SF
52	Weath/Raveling	H	NOPOL No Lcl Maint Policy	0	SF
53	Rutting	L	NOPOL No Lcl Maint Policy	0	SF
53	Rutting	M	PAAD1 Patch – 3” AC Deep	\$ 2.20	SF
53	Rutting	H	PAAD1 Patch – 3” AC Deep	\$ 2.20	SF
54	Shoving	L	NOPOL No Lcl Maint Policy	0	SF
54	Shoving	M	PAAD1 Patch – 3” AC Deep	\$ 2.20	SF
54	Shoving	H	PAAD1 Patch – 3” AC Deep	\$ 2.20	SF
55	Slippage Crack	--	NOPOL No Lcl Maint Policy	0	SF
56	Swelling	L	PAAD1 Patch – 3” AC Deep	\$ 2.20	SF
56	Swelling	M	PAAD1 Patch – 3” AC Deep	\$ 2.20	SF
56	Swelling	H	PAAD1 Patch – 3” AC Deep	\$ 2.20	SF

TABLE C-2

Local Maintenance Policy No. 02

Flexible Pavements

Aircraft with Maximum Gross Weight of > 30,000 lbs.

Code	Distress	Sev	Work Type & Description	Unit Cost	Unit
41	Alligator Crack	L	PAAD2 Patch – 4” AC Deep	\$ 2.90	SF
41	Alligator Crack	M	PAAD2 Patch – 4” AC Deep	\$ 2.90	SF
41	Alligator Crack	H	PAAD2 Patch – 4” AC Deep	\$ 2.90	SF
42	Bleeding	--	NOPOL No Lcl Maint Policy	0	SF
43	Block Crack	L	NOPOL No Lcl Maint Policy	0	SF
43	Block Crack	M	NOPOL No Lcl Maint Policy	0	SF
43	Block Crack	H	NOPOL No Lcl Maint Policy	0	SF
44	Corrugation	L	NOPOL No Lcl Maint Policy	0	SF
44	Corrugation	M	PAAD2 Patch – 4” AC Deep	\$ 2.90	SF
44	Corrugation	H	PAAD2 Patch – 4” AC Deep	\$ 2.90	SF
45	Depression	L	NOPOL No Lcl Maint Policy	0	SF
45	Depression	M	PAAD2 Patch – 4” AC Deep	\$ 2.90	SF
45	Depression	H	PAAD2 Patch – 4” AC Deep	\$ 2.90	SF
46	Jet Blast	--	NOPOL No Lcl Maint Policy	0	SF
47	Joint Refl Cr	L	NOPOL No Lcl Maint Policy	0	LF
47	Joint Refl Cr	M	NOPOL No Lcl Maint Policy	0	LF
47	Joint Refl Cr	H	CS-RC Crack Seal, Refl Cr	\$0.75	LF
48	Long & Trans Cr	L	NOPOL No Lcl Maint Policy	0	LF
48	Long & Trans Cr	M	CS-RC Crack Seal, L & T Cr	\$0.75	LF
48	Long & Trans Cr	H	CS-RC Crack Seal, L & T Cr	\$0.75	LF
49	Oil Spillage	L	NOPOL No Lcl Maint Policy	0	SF
50	Patching	L	NOPOL No Lcl Maint Policy	0	SF
50	Patching	M	NOPOL No Lcl Maint Policy	0	SF
50	Patching	H	PAAD2 Patch – 4” AC Deep	\$ 2.90	SF
51	Polished Aggreg	--	NOPOL No Lcl Maint Policy	0	SF
52	Weath/Raveling	L	NOPOL No Lcl Maint Policy	0	SF
52	Weath/Raveling	M	NOPOL No Lcl Maint Policy	0	SF
52	Weath/Raveling	H	NOPOL No Lcl Maint Policy	0	SF
53	Rutting	L	NOPOL No Lcl Maint Policy	0	SF
53	Rutting	M	PAAD2 Patch – 4” AC Deep	\$ 2.90	SF
53	Rutting	H	PAAD2 Patch – 4” AC Deep	\$ 2.90	SF
54	Shoving	L	NOPOL No Lcl Maint Policy	0	SF
54	Shoving	M	PAAD2 Patch – 4” AC Deep	\$ 2.90	SF
54	Shoving	H	PAAD2 Patch – 4” AC Deep	\$ 2.90	SF
55	Slippage Crack	--	NOPOL No Lcl Maint Policy	0	SF
56	Swelling	L	PAAD2 Patch – 4” AC Deep	\$ 2.90	SF
56	Swelling	M	PAAD2 Patch – 4” AC Deep	\$ 2.90	SF
56	Swelling	H	PAAD2 Patch – 4” AC Deep	\$ 2.90	SF

TABLE C-3

**Local Maintenance Policy No. 03
 Portland Cement Concrete (PCC) Pavements
 All Aircraft Gross Weights**

Code	Distress	Sev	Work Type & Description	Unit Cost	Unit
61	Blowup	L	PA-PF Patch PCC Full Depth	\$ 30.50	SF
61	Blowup	M	PA-PF Patch PCC Full Depth	\$ 30.50	SF
61	Blowup	H	PA-PF Patch PCC Full Depth	\$ 30.50	SF
62	Corner Break	L	NOPOL No Lcl Maint Policy	0	LF
62	Corner Break	M	NOPOL No Lcl Maint Policy	0	LF
62	Corner Break	H	PA-PF Patch PCC Full Depth	\$ 30.50	SF
63	Linear Crack	L	NOPOL No Lcl Maint Policy	0	LF
63	Linear Crack	M	CR-PE Cr Repair Equiv Cost	\$4.90	LF
63	Linear Crack	H	CR-PE Cr Repair Equiv Cost	\$4.90	LF
64	Durability Cr	L	NOPOL No Lcl Maint Policy	0	SF
64	Durability Cr	M	PA-PP Patch PCC Partial Depth	\$6.10	SF
64	Durability Cr	H	PA-PF Patch PCC Full Depth	\$ 30.50	SF
65	Jt Seal Damage	L	NOPOL No Lcl Maint Policy	0	LF
65	Jt Seal Damage	M	NOPOL No Lcl Maint Policy	0	LF
65	Jt Seal Damage	H	JS-BT Jt Seal, Bituminous	\$4.90	LF
66	Small Patch	L	NOPOL No Lcl Maint Policy	0	SF
66	Small Patch	M	NOPOL No Lcl Maint Policy	0	SF
66	Small Patch	H	PA-PP Patch PCC Partial Depth	\$6.10	SF
67	Large Patch	L	NOPOL No Lcl Maint Policy	0	SF
67	Large Patch	M	PA-PP Patch PCC Partial Depth	\$6.10	SF
67	Large Patch	H	PA-PF Patch PCC Full Depth	\$ 30.50	SF
68	Popouts	--	NOPOL No Lcl Maint Policy	0	SF
69	Pumping	--	NOPOL No Lcl Maint Policy	0	SF
70	Scaling	L	NOPOL No Lcl Maint Policy	0	SF
70	Scaling	M	NOPOL No Lcl Maint Policy	0	SF
70	Scaling	H	PA-PP Patch PCC Partial Depth	\$6.10	SF
71	Faulting	L	NOPOL No Lcl Maint Policy	0	LF
71	Faulting	M	NOPOL No Lcl Maint Policy	0	LF
71	Faulting	H	SL-PC Slab Replacement – PCC	\$40.50	LF
72	Shattered Slab	L	NOPOL No Lcl Maint Policy	0	SF
72	Shattered Slab	M	SL-PC Slab Replacement – PCC	\$40.50	SF
72	Shattered Slab	H	SL-PC Slab Replacement – PCC	\$40.50	SF
73	Shrinkage Cr	--	NOPOL No Lcl Maint Policy	0	SF
74	Joint Spall	L	NOPOL No Lcl Maint Policy	0	SF
74	Joint Spall	M	PA-PP Patch PCC Partial Depth	\$67.50	SF
74	Joint Spall	H	PA-PP Patch PCC Partial Depth	\$67.50	SF
75	Corner Spall	L	NOPOL No Lcl Maint Policy	0	SF
75	Corner Spall	M	PA-PP Patch PCC Partial Depth	\$67.50	SF
75	Corner Spall	H	PA-PF Patch PCC Full Depth	\$ 30.50	SF

TABLE C-4

GLOBAL MAINTENANCE POLICY

PCI	FLEXIBLE (ASPHALT) PAVEMENTS		RIGID (CONCRETE) PAVEMENTS	
	< 30,000 lb Aircraft	> 30,000 lb Aircraft	< 30,000 lb Aircraft	> 30,000 lb Aircraft
100				
85	SLURRY SEAL (ST-SS) "L" Block Cracks "L" Weathering/Raveling	SLURRY SEAL (ST-SS) "L" Block Cracks "L" Weathering/Raveling		
70				
55	THIN (1.5") OVERLAY (OL-AT) "M" Weathering	THICK (3") OVERLAY (OL-AF) "M" Block Cracks "M" & "H" Weathering/Raveling		
40	THICK (3") OVERLAY (OL-AF) "M" Block Cracks "H" Weathering/Raveling			
25	RECONSTRUCT (CRAC1) "H" Block Cracks "H" Long & Trans Cracks Alligator Crack > 20% density Corrugation > 20% density Rutting > 20% density	RECONSTRUCT (CRAC2) "H" Block Cracks "H" Long & Trans Cracks Alligator Crack > 20% density Corrugation > 20% density Rutting > 20% density		
10				
0			RECONSTRUCT (CR-PA) All PCI < 10 conditions	RECONSTRUCT (CR-PC) All PCI < 10 conditions

Explanation and Use of Global Maintenance Policy Table:

1. Shaded areas indicate No Global Maintenance Policy.
2. Density of listed distresses for global repair > 50% except as indicated.

TABLE C-5

WORK TYPE TABLE

C = Construction, M = Maintenance, G = Global Treatment, L = Local Treatment

CODE	DESCRIPTION	WK UNIT	UNIT COST	C/M	G/L
CRAC1	Compl Recon/Recycle (3" new AC)	sq ft	\$ 2.80	C	G
CRAC2	Compl Recon/Recycle (5" new AC)	sq ft	\$ 5.60	C	G

Description: Work items are for reconstruction of asphalt pavements that are in the failed or very poor areas of PCI rating (0 to 25). CRAC1 is for global reconstruction of asphalt concrete (AC) pavements accommodating aircraft gross weights ≤ 30,000 lbs. CRAC2 is for aircraft over 30,000 lbs.: 1) Remove existing pavement structure, grind, and re-use as aggregate base. 2) Rework, replenish, and compact base course. 3) Place new AC course.

CR-PC	Compl Reconstruction – PCC	sq ft	\$ 6.70	C	G
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Description: Work item is for global reconstruction of 8" and 10" failed (PCI 0 to 10) concrete pavements accommodating aircraft over 30,000 lbs.: 1) Remove and dispose of old concrete pavement. 2) Rework subgrade and place 4" of new aggregate base. 3) Construct new concrete pavement.

CR-PA	Compl Reconstruction – PCC to AC	sq ft	\$ 2.80	C	G
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Description: Work item is for global reconstruction of 6" and less failed (PCI 0 to 10) concrete pavements by replacing concrete with new AC pavement: 1) Remove and dispose of old concrete pavement. 2) Rework subgrade and reconstruct with 2" of AC over 8" of aggregate base.

CS-RC	Crack Sealing – AC Refl Cracks	lin ft	\$ 0.75	M	L
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Description: Work item is to repair H severity reflective cracks in AC overlay over concrete: 1) Clean cracks by air blasting and other methods necessary to free cracks of dirt, vegetation, debris, and loose sealant. 2) Seal cracks with AC compatible sealant to slightly below level of surrounding pavement.

TABLE C-5 (continued)

C = Construction, M = Maintenance, G = Global Treatment, L = Local Treatment

CODE	DESCRIPTION	WK UNIT	UNIT COST	C/M	G/L
CS-LC	Crack Sealing – AC L & T Cracks	lin ft	\$ 1.00	M	L
	Description: Work item is to repair cracks in AC over 1/2" wide in M and H severity range: 1) Treat cracks with soil sterilant and clean by air blasting and other methods necessary to free cracks of dirt, vegetation, debris, and loose sealant. 2) For cracks ≤ 1 1/2" wide, fill crack with clean sand to form a reservoir of 1.0 to 1.5 depth to width ratio and seal cracks with AC compatible sealant to 1/8" below level of surrounding pavement. 3) For cracks wider than 1 1/2," tack coat side walls, fill cracks with 1/2" minus plant mix AC, and compact by tamping. If area is to receive an overlay, perform steps 1 and 3 for all width cracks.				
CR-PE	Crack Repair – PCC Equiv Cost	lin ft	\$ 40.50	M	L
	Description: Work item is to repair M and H severity linear cracks which divide slab into two or three pieces and are considered major structural distresses. Method of repair is slab replacement. Linear cracks are measured by lin ft in MicroPAVER™ program. To accommodate PAVER program, listed repair cost in lin ft represents equivalent cost of slab replacement as described under work type SL-PC.				
JS-BT	Joint Sealing – Bituminous	sq ft	\$ 3.00	M	L
	Description: Work item is for replacement of damaged bituminous joint sealant in PCC pavements: 1) Remove old joint sealant, re-face joints by sawing, and sandblast surfaces clean. 2) Install backer rod and PCC compatible joint sealant.				
OL-AF	Overlay- 3" Thick	sq ft	\$ 2.10	C	G
	Description: Work item is for global repair of AC pavements accommodating aircrafts with gross weights ≤ 30,000 lbs which have widespread M severity block cracking or H severity weathering/raveling: 1) Patch existing failed areas (assume 10% of area) and seal larger L&T cracks, 2)Apply asphalt binder to pavement surface, and, 2) Construct a 3" surface course overlay.				

TABLE C-5 (continued)

C = Construction, M = Maintenance, G = Global Treatment, L = Local Treatment

CODE	DESCRIPTION	WK UNIT	UNIT COST	C/M	G/L
OL-AT	Overlay – AC Thin	sq ft	\$ 1.05	C	G
	Description: Work item is for global repair of AC pavements with M severity weathering and raveling: 1) Patch existing pavement failures (assume 2% or area), seal larger L&T cracks. 2) Apply tack coat to pavement surface. 3) Construct a 1 1/2" surface course AC overlay.				
PAAD1	Patching – AC Deep, Type 1	sq ft	\$ 2.20	M	L
	Description: Work item is to repair most severities of alligator cracking, corrugations, depressions, patches, rutting, shoving, and swelling in AC pavements accommodating aircraft gross weights ≤ 30,000 lbs.: 1) Saw cut outside of defective areas, remove pavement section to firm material. 2) Replace and compact subbase and base material as required. 3) Apply prime coat to base material and tack coat to vertical faces of existing AC pavement. 4) Place AC surface course and compact.				
PAAD2	Patching – AC Deep, Type 2	sq ft	\$ 2.90	M	L
	Description: Same as PAAD1 except work item is for AC pavements accommodating aircraft gross weights over 30,000 lbs. Higher unit cost reflects additional work involved.				
PA-PF	Patching – PCC Full Depth	sq ft	\$ 30.50	M	L
	Description: Work item is to repair all severity blowups and H severity corner breaks, durability cracks, and large patches, and applies to pavements for all aircraft gross weights: 1) Saw cut outside of defective area, and break out and remove concrete from area to be patched. 2) Remove defective base material, and add and compact new material. 3) Clean face of remaining slab and coat with grout. 4) Maintain existing joint pattern using temporary inserts. 5) Place PCC concrete in patch area and finish to surrounding texture. 6) Prepare and seal joints.				

TABLE C-5 (continued)

C = Construction, M = Maintenance, G = Global Treatment, L = Local Treatment

CODE	DESCRIPTION	WK UNIT	UNIT COST	C/M	G/L
PA-PP	Patching – PCC Partial Depth	sq ft	\$ 6.50	M	L
	Description: Work item is to repair various severities of durability cracks, patches, scaling, joint spalls and corner spalls, and applies to pavements for all aircraft gross weights: 1) Saw cut around defective area and break out unsound concrete with air hammers or pneumatic drills. 2) Maintain existing joints using temporary inserts. 3) Clean and prepare surfaces. 4) Place polymer concrete, tamp in place, and finish to surrounding texture. 5) Saw and seal joints.				
SL-PC	Slab Replacement – PCC	sq ft	\$ 40.50	M	L
	Description: This work item is for replacement of concrete slabs with M or H severity shattered slabs or H severity faulted slabs: 1) Remove and dispose of old slab and unsuitable base. 2) Re-work subgrade and place 4" new aggregate base. 3) Construct new concrete slab.				
SS-FS	Surface Seal – Fog Seal	sq ft	\$ 0.10	M	G
	Description: Work item is to seal small cracks and surface voids and retard the aging of pavements in good condition but subject to L severity weathering/raveling and block cracking. In this report, fog seal is used only on pavements accommodating aircraft gross weights over 30,000 lbs.: 1) Before application, clean surfaces with power broom and air blast. 2) Apply asphalt emulsion diluted with equal amount of water.				
ST-SS	Surface Treatment – Slurry Seal	sq ft	\$ 0.45	M	G
	Description: Work item is to seal small cracks and surface voids, retard raveling and loss of matrix, and improve skid resistance. Slurry seal is used only on pavements accommodating aircraft gross weights ≤ 30,000 lbs.: 1) Before application of slurry, thoroughly clean surfaces. 2) Apply a tack coat if pavement is dry or porous. 3) Apply a Type II polymer-modified slurry seal. 4) Roll 2 full coverages and vacuum sweep.				