

**AGREEMENT FOR TECHNICAL ASSISTANCE  
BETWEEN THE SECRETARY OF TRANSPORTATION  
AND THE UNIVERSITY OF KANSAS**

**THIS AGREEMENT** made this \_\_\_\_\_ day of \_\_\_\_\_, 200\_\_, by and between the Secretary of Transportation of the State of Kansas, hereinafter referred to as the "**Secretary**," and The University of Kansas, hereinafter referred to as "**KU**," acting by and through Barbara Armbrister, Director, Research Administration, its duly authorized representative. Collectively referred to as the "Parties."

**WITNESSETH**

**WHEREAS**, the **Secretary** has determined that research regarding "Construction of Crack-Free Concrete Bridge Decks, Phase II" is needed and approved as part of the **KDOT** Research Program; and

**WHEREAS**, the proposed program is hereinafter called "Project;" and

**WHEREAS**, the **KU** has qualified personnel with demonstrated expertise available to conduct the Project; and

**WHEREAS**, the **Secretary** is willing, subject to the terms of the **Agreement**, to reimburse **KU** for the assistance provided.

**NOW THEREFORE**, in consideration of the mutual covenants herein contained, the Parties hereto agree as follows:

**Section 1. Scope of Services.** The **KU** shall furnish the necessary personnel, facilities, and such other services as may be required to fulfill the tasks identified and described in the Workplan which is attached hereto and incorporated herein as Special Attachment No. 3.

**Section 2. Contract Dates.** The **KU** may commence work in conformity with the Workplan (Special Attachment No. 3) of this **Agreement** upon acceptance by the **Secretary** of the Workplan and shall prosecute the work outlined herein to begin on or after July 1, 2008, and with completion not later than June 30, 2013, unless the time is extended by the **Secretary**, as evidenced in writing.

**Section 3. Basis of Payment.** The **Secretary** agrees to reimburse the **KU** for the work completed and actual costs incurred in performance of the **Agreement** in accordance with the proposed budget, page 10 through 14 of the Workplan, in an amount not to exceed a total price of \$ 975,000. A combination of Federal monies and State monies are used to fund this Project. The project costs referred to in this **Agreement** shall be comprised of the allowable direct costs incidental to the performance of the work described in the Workplan and indirect costs. Indirect costs shall not exceed **forty-four (44)** percent of the total direct costs to the extent that

Federal-aid funds are used for payment. In the event final approval of Federal appropriation is not obtained, the **Secretary** will be responsible for only those noncancelable obligations incurred by **KU** for work under this **Agreement**.

The **Secretary** agrees to make progress payments to the **KU** upon presentation of proper billing and certification of work performed. The **Secretary** will reimburse allowable costs as requested by the **KU** less two percent retainage. Certification of work performed will be documented by progress reports required under Section 11 of the **Agreement**. The **KU** shall indicate on the last project billing that it is the final billing. The final request for payment shall not be disbursed until the **Secretary** determines that all obligations of the **Agreement** have been completed. Reimbursement of any cost pursuant to this **Section** shall not constitute a final determination by the **Secretary** of the allowability of such cost and shall not constitute a waiver of any violation of the terms of the **Agreement** committed by the **KU**.

The **KU** agrees to obligate matching funds for additional direct and indirect costs included in the proposed budget in an amount of \$ NONE. In the event final approval of Federal appropriation is not obtained, the **KU** will be responsible for only those additional direct and indirect costs associated with noncancelable obligations incurred by **KU** for work under this **Agreement**.

The portion of funds provided under the provisions of 23 U.S.C. 504 as amended by Section 1702 of the SAFETEA-LU may not be used to reimburse travel, subsistence or salary costs of trainees.

The test of allowability of a cost to be applied in this **Agreement** is based on the reasonableness of the allocation of the cost under generally accepted cost accounting principles and practices and in accordance with 48 Code of Federal Regulations (CFR) 1-31.00 et. seq., and relevance to tasks identified and described in the Workplan. However, such costs are subject to limitation as per **Agreement**.

The final payment due under provisions of this **Agreement** shall be made within ninety (90) days after the **Secretary's** and the appropriate Federal agency's acceptance and approval of the Final Evaluation Report and **KU'S** compliance with OMB A-133, Single Audit Act.

**Section 4. Covenant Against Contingent Fees.** The **KU** warrants and guarantees that provisions for covenants against contingent fees found in Special Attachment No. 2 are incorporated in this **Agreement** and made a part hereof. For breach or violation of this warranty, the **Secretary** shall have the right to annul this **Agreement** without liability, or in his discretion to deduct from the **Agreement** price or consideration, or otherwise recover, the full amount of such fee, commission, percentage, brokerage fee, gift, or contingent fee.

**Section 5. Rights in the Project.**

A. **Rights in Data.** The **KU** grants to the **Secretary**, for any governmental purposes, the right to publish, translate, reproduce, deliver, use and dispose of, and to authorize others to do so, all data, including reports, drawings, blueprints, computer software which includes but is not limited to documentation and source code, and other technical information resulting from the

performance of work under this **Agreement**. When the **Secretary** authorizes others to use, for governmental purposes, any patented or copyrighted items arising from the project, the **Secretary** will issue a standard restriction **Agreement** to each party receiving authorization for return to **KU**.

B. Rights in Equipment. It is mutually agreed by the **KU** and the **Secretary** that all apparatus and equipment purchased with funds provided by the **Secretary** shall be used by the **KU** for the project. Upon the **KU** notifying the **Secretary** of completion of the project, the **Secretary** shall determine and notify the **KU** if such apparatus and equipment shall be used by the **Secretary** in the conduct of its works. During the contract dates, **KU** shall not bear the risk of loss or damage to apparatus or equipment purchased under this project and the **Secretary** has the option of whether or not to replace the loss or repair the damage to apparatus or equipment. The **Secretary** reserves the right to take possession of apparatus and equipment purchased for this **Agreement** within one year either after termination of the **Agreement** or completion of the project.

C. Rights in Intellectual Property. Consistent with KDOT and Kansas Board of Regents policy, the **KU** will retain all rights to intellectual property including patents and copyrights arising from the project. The **Secretary** and the **U.S. Government** shall retain a royalty—free, nonexclusive, irrevocable license to use any patent or copyright arising from the project for any governmental purposes. If the **KU** elects not to pursue the patenting or copyrighting of intellectual property, the **KU** will provide written notification to the **Secretary** who shall be free to do so. The **KU** agrees to include, within the specification of any United States patent or copyright application and any patent and copyright issuing, the following statement, "The invention (copyright) was made with funds provided by the Federal government and State of Kansas through the Kansas Department of Transportation."

D. Confidentiality. The **Secretary** and the **KU** agree that information exchanged and generated pursuant to this **Agreement**, will generally be non-confidential and suitable for publication. Nevertheless the **Secretary**, or his or her duly authorized representatives, may disclose to **KU**, during the course of the project, confidential information including data and statistics not suitable for public dissemination. **KU** agrees to maintain such information in confidence, and to prevent the disclosure thereof to others to the extent that such information is disclosed in writing and marked as confidential or proprietary; if orally disclosed, noted at the time of disclosure as being confidential and or proprietary, and reduced to writing within thirty (30) days after such oral disclosure, the writing being marked as confidential or proprietary. **KU** agrees that neither the **KU** nor any of its colleagues, employees or agents shall use any of the confidential information for any purpose whatsoever, other than to complete this assignment for KDOT. The **KU** agrees that the **KU** or any of its colleagues, employees or agents shall not keep any copies of the information provided by the **Secretary** or his or her duly authorized representatives that has been identified as confidential or proprietary, and provided pursuant to this **Agreement**.

**Section 6. Work Responsibility**. The Parties hereto mutually agree that the services to be performed under the terms of this **Agreement** are to be performed by the **KU**, with principal offices at the University of Kansas, Lawrence, Kansas and that their time and effort as defined in the Workplan, Special Attachment No. 3, cannot be assigned, sublet, or transferred to any other party without the written consent of the **Secretary**. **KU** accepts full responsibility for the Project

and its conduct. The **KU** will bill the **Secretary** for reimbursement as specified in the **Agreement** as awarded. For the purposes of administrative efficiency, the **KU** will subcontract to the University of Kansas Center for Research, Inc. (KUCR), as KUCR is the normal administrative agency for projects under The University of Kansas. This subcontractual arrangement will in no way affect the work on the project, the scientific personnel, or the billing between the **KU** and the **Secretary**.

**Section 7. Inspection and Approval of Work.** The **KU** shall permit the **Secretary** or his or her duly authorized representative to inspect and audit all work, material, computer programs and other data and records either during the performance of project or for three years after final acceptance of the project. All work will be performed according to the requirements as outlined in the Workplan, Special Attachment No. 3. Final inspection of the project will be conducted by the **Secretary** or his or her duly authorized representative.

**Section 8. Publication Provisions.** Publication by any party to this **Agreement** shall give credit to all other parties. However, if the **Secretary** does not wish to subscribe to the findings or conclusions of an interim report, the following statement shall be added: "The opinions, findings, and conclusions expressed in this publication are those of the authors and not necessarily those of the Kansas Department of Transportation." In the event of failure to reach a consensus between the **Secretary** and the **KU** relative to the publication of a final report, or any other reports during the period of the **Agreement**, the **Secretary** reserves the right to publish independently in which event the nonconcurrence of the **KU** shall be set forth in said publication, if requested by the **KU**.

**Section 9. Audit and Retention of Records.** Arrangements shall be made by the **KU** for the required financial and compliance audit to ensure that the audit will be made within the prescribed audit reporting cycle, and a copy of the OMB A—133 audit will be provided to the **Secretary**.

The **KU** shall be required to maintain accounting records and other evidence pertaining to the costs incurred and to make the records available to their office at all reasonable times during the **Agreement** period and for three (3) years from the date of the final payment to the **KU** under this **Agreement**. Such accounting records and other evidence pertaining to the costs incurred will be made available for inspection by the **Secretary** or his or her duly authorized representatives and copies thereof shall be furnished if requested.

**Section 10. Termination of Agreement.** Either party has the right to terminate this **Agreement** by giving thirty (30) days written notice in the event a determination is made that the project should be abandoned or indefinitely postponed; **Provided**, however, that in any case, the **KU** shall be paid the amount due for the services rendered and for any noncancelable obligations incurred prior to the date of termination on the basis of the provisions of this **Agreement** and provided that the **Secretary** shall receive full reports of all work performed to the date of termination of this **Agreement**.

**Section 11. Reports.** The **KU** shall advise the **Secretary** regarding the progress of the project at such times and in such a manner as the **Secretary** may require, including but not limited to the following:

- 1) A monthly summary of project expenditures by task including the following cost elements: salary & fringe benefits, overhead, professional services, supplies, travel, cumulative total task cost, and cumulative total cost expressed as percent of estimated total task cost.
- 2) A final report evaluating the effectiveness of the program.

**Section 12. Cooperation and Disputes.** The **Secretary** and the **KU** agree to make a reasonable effort to promptly resolve any disputes or questions concerning the project. The **Secretary** and the **KU** ensure that personnel will cooperate fully in carrying out the intent and provisions of this **Agreement**. The **Secretary** shall, in all cases not disposed of by **Agreement** among or between the Parties to this **Agreement**, resolve any disputes which may arise in connection with the work being performed under this **Agreement**.

**Section 13. Compliance with Laws.** The **KU** in the implementation of the administrative service and the **KU** in the implementation of the Workplan, both as provided for in this **Agreement**, agree to comply with all federal, state and local laws, ordinances and regulations, including but not limited to Title VI, Title VII and Title IX of the Civil Rights Act of 1964 and Executive Order 11246 as amended by Executive Order 11375 entitled "Equal Employment Opportunity;" Executive Order 12549 regarding debarment, eligibility, indictments, convictions, or civil judgements; and 31 U.S.C. Section 1352: Section 319 P.L. 101.21 prohibiting use of Federal funds for lobbying activities which are incorporated herein as Special Attachments Nos. 1, 5 and 6, respectively.

**Section 14. Responsibility to Employees.** The **KU** accepts full responsibility for payment of unemployment insurance, workmen's compensation, and social security as well as all income tax deductions and any other taxes or payroll deductions required by the law for its employees engaged in the work authorized by the **Agreement**.

**Section 15. Employment of Secretary's Employees.** The **KU** will not, without written permission from the **Secretary**, engage the services of any person or persons in the employment of the **Secretary** for any work required by the terms of the **Agreement**.

**Section 16. Contractual Provisions Attachment.** The provisions found in Contractual Provisions Attachment Form DA—146a, Special Attachment No. 4, which is attached hereto, are hereby incorporated in this **Agreement** and made a part hereof.

**Section 17. Indemnification Agreement.** The **KU** agrees to indemnify and hold harmless the **Secretary** and the **Secretary's** duly authorized representatives from any and all costs, liabilities, expenses, suits, judgments, damages to person or property or claims of any nature whatsoever arising out of the negligent acts of the **KU**, the **KU** employees or subcontractors, in the performance of this **Agreement**. The **KU** shall not be required to indemnify and hold the **Secretary** harmless for negligent acts of the **Secretary** or his or her duly authorized representatives or employees. Nothing in this indemnification clause is meant to affect Section 4 Disclaimer of Liability of DA—146a, Special Attachment No. 4.

**Section 18. Prohibited Interest.** No member, officer or employee of the **KU** during his/her tenure or one year thereafter shall have any interest, direct or indirect, in this **Agreement** or the proceeds thereof other than that allowed by Board of Regents policy.

**IN WITNESS WHEREOF** the Parties hereto have caused this **Agreement** to be signed by their duly authorized officers on the day and year first above written.

**KU**

**Secretary**

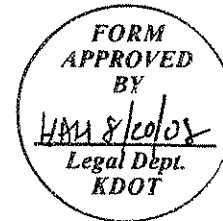
Barbara Armbrister  
Barbara Armbrister  
Director  
Research Administration

Debra L. Miller  
Debra L. Miller  
Secretary of Transportation  
By: Jerome T. Younger, P.E.  
Deputy Secretary for Engineering and  
State Transportation Engineer

Marcilla Bentley-Salmon  
ATTEST

Reagan Hansen-Nagy  
ATTEST

- Special Attachment No. 1, Civil Rights Act
- Special Attachment No. 2, Certification - Covenant Against Fees
- Special Attachment No. 3, Workplan
- Special Attachment No. 4, Form DA-146a
- Special Attachment No. 5, Certification - Debarment
- Special Attachment No. 6, Certification - Federal Aid Contracts



KANSAS DEPARTMENT OF TRANSPORTATION

Special Attachment

To Contracts or Agreements Entered Into  
By the Secretary of Transportation of the State of Kansas

NOTE: Whenever this Special Attachment conflicts with provisions of the Document to which it is attached, this Special Attachment shall govern.

THE CIVIL RIGHTS ACT OF 1964, AND ANY AMENDMENTS THERETO,  
REHABILITATION ACT OF 1973, AND ANY AMENDMENTS THERETO,  
AMERICANS WITH DISABILITIES ACT OF 1990, AND ANY AMENDMENTS THERETO,  
AGE DISCRIMINATION ACT OF 1975, AND ANY AMENDMENTS THERETO  
EXECUTIVE ORDER 12898, FEDERAL ACTIONS TO ADDRESS ENVIRONMENTAL JUSTICE IN MINORITY  
POPULATIONS AND LOW INCOME POPULATIONS (1994) AND ANY AMENDMENTS THERETO,  
49 C.F.R. PART 26.1 (DBE PROGRAM), AND ANY AMENDMENTS THERETO

NOTIFICATION

The Secretary of Transportation for the State of Kansas, in accordance with the provisions of Title VI and Title VII of the Civil Rights Act of 1964 (78 Stat. 252), §504 of the Rehabilitation Act of 1973 (87 Stat. 355) and the Americans with Disabilities Act of 1990 (42 USC 12101), the Age Discrimination Act of 1975 (42 USC 6101) and the Regulations of the U.S. Department of Transportation (49 C.F.R., Part 21, 23 and 27), issued pursuant to such Act, and Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations (1994), and the DBE Program (49 C.F.R., Part 26.1), hereby notifies all contracting parties that, the contracting parties will affirmatively insure that this contract will be implemented without discrimination on the grounds of race, religion, color, gender, age, disability, national origin, or minority populations and low income populations as more specifically set out in the following nine "Nondiscrimination Clauses".

CLARIFICATION

Where the term "consultant" appears in the following seven "Nondiscrimination Clauses", the term "consultant" is understood to include all parties to contracts or agreements with the Secretary of Transportation of the State of Kansas.

Nondiscrimination Clauses

During the performance of this contract, the consultant, or the consultant's assignees and successors in interest (hereinafter referred to as the "consultant's"), agrees as follows:

- (1) **Compliance with Regulations:** The consultant will comply with the Regulations of the U.S. Department of Transportation relative to nondiscrimination in federally-assisted programs of the U.S. Department of Transportation (Title 49, Code of Federal Regulations, Parts 21, 23 and 27, hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.
- (2) **Nondiscrimination:** The consultant, with regard to the work performed by the consultant after award and prior to the completion of the contract work, will not discriminate on the grounds of race, religion, color, gender, age, disability, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The consultant will not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.
- (3) **Solicitations for Subcontractors, Including Procurements of Materials and Equipment:** In all solicitations, either competitive bidding or negotiation made by the consultant for work to be performed under a subcontract including procurements of materials or equipment, each potential subcontractor or supplier shall be notified by the consultant of the consultant's obligation under this contract and the Regulations relative to nondiscrimination on the grounds of race, religion, color, gender, age, disability, national origin or minority populations and low income populations.

- (4) **Information and Reports:** The consultant will provide all information and reports required by the Regulations, or orders and instructions issued pursuant thereto, and the Secretary of Transportation of the State of Kansas will be permitted access to the consultants books, records, accounts, other sources of information, and facilities as may be determined by the Secretary of Transportation of the State of Kansas to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a consultant is in the exclusive possession of another who fails or refuses to furnish this information, the consultant shall so certify to the Secretary of Transportation of the State of Kansas and shall set forth what efforts it has made to obtain the information.
- (5) **Employment:** The consultant will not discriminate against any employee or applicant for employment because of race, religion, color, gender, age, disability, or national origin.
- (6) **Sanctions for Noncompliance:** In the event of the consultant's noncompliance with the nondiscrimination provisions of this contract, the Secretary of Transportation of the State of Kansas shall impose such contract sanctions as the Secretary of Transportation of the State of Kansas may determine to be appropriate, including, but not limited to,
  - (a) withholding of payments to the consultant under the contract until the contractor complies, and/or
  - (b) cancellation, termination or suspension of the contract, in whole or in part.
- (7) **Disadvantaged Business Obligation**
  - (a) Disadvantaged Businesses as defined in the Regulations, shall have a level playing field to compete fairly for contracts financed in whole or in part with Federal funds under this contract.
  - (b) All necessary and reasonable steps shall be taken in accordance with the Regulations to ensure that Disadvantaged Businesses have equal opportunity to compete for and perform contracts. No person(s) shall be discriminated against on the basis of race, color, gender, or national origin in the award and performance of Federally-assisted contracts.
- (8) **Executive Order 12898**
  - (a) To the extent permitted by existing law, and whenever practical and appropriate, all necessary and reasonable steps shall be taken in accordance with Executive Order 12898 to collect, maintain, and analyze information on the race, color, national origin and income level of persons affected by the programs, policies and activities of the Secretary of Transportation and use such information in complying with this Order.
- (9) **Incorporation of Provisions:** The consultant will include the provisions of paragraph (1) through (8) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, order, or instructions issued pursuant thereto. The consultant will take such action with respect to any subcontract or procurement as the Secretary of Transportation of the State of Kansas 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 subcontractor or supplier as a result of such direction, the consultant may request the State to enter into such litigation to protect the interests of the State.



CERTIFICATION OF THE UNIVERSITY OF KANSAS

I hereby certify that I am the Director and duly authorized representative of Research Administration at The University of Kansas and that neither I nor the above agency I here represent has:

- (a) employed or retained for the payment of a commission, percentage, brokerage, contingent fee, or other consideration, any firm or person (other than a bona fide employee working solely for me or a consultant) to solicit or secure this Agreement,
- (b) agreed, as an express or implied condition for obtaining this Agreement, to employ or retain the services of any firm or person in connection with carrying out the contract, or
- (c) paid, or agreed to pay, to any firm, organization of persons (other than a bona fide employee working solely for me or a consultant) any fee, contribution, donation, or consideration of any kind for, or in connection with, procuring or carrying out the Agreement;

except as here expressly stated (if any):

I acknowledge that this certificate is to be furnished to the Secretary of Transportation of the State of Kansas in connection with this Agreement and is subject to applicable State and Federal laws, both criminal and civil.

8/14/08

(Date)

Barbara Armbrister

Barbara Armbrister  
Director, Research Administration

Certification of the Deputy Secretary for Engineering & State Transportation Engineer


I hereby certify that I am the Deputy Secretary for Engineering and State Transportation Engineer of the State of Kansas, and that The University of Kansas or their representative has not been required, directly or indirectly as an express or implied condition in connection with obtaining or carrying out this Agreement, to:

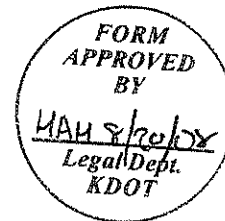
- (a) Employ or retain, or agree to employ or retain, any firm or person, or
- (b) Pay, or agree to pay, to any firm, person, or organization, any fee, contribution, donation, or consideration of any kind;

Except as herein expressly stated (if any):

I acknowledge that this certificate is to be furnished to the above referenced firm in connection with this Agreement, and is subject to applicable State and Federal laws, both criminal and civil.

8/22/08  
(Date)

  
Jerome T. Younger, P.E.  
Deputy Secretary for Engineering and  
State Transportation Engineer



Proposal to

Kansas Department of Transportation

for

**CONSTRUCTION OF CRACK-FREE CONCRETE BRIDGE DECKS, PHASE II**

Period of Performance: 07/01/08 – 06/30/13

Funds Requested: \$975,000

Project Monitor: Kenneth Hurst, Engineering Manager  
Bureau of Design – State Bridge Office  
Dwight D. Eisenhower State Office Building  
Dwight D. Eisenhower State Office Building  
700 S.W. Harrison Street  
Topeka, KS 66603-3754  
Phone: 785-296-2231 Email: [kenh@ksdot.org](mailto:kenh@ksdot.org)

from

The University of Kansas  
2385 Irving Hill Road  
Lawrence, KS 66045-7563

Project Personnel:  
David Darwin, PI  
JoAnn Browning, Co-PI  
Department of Civil, Environmental, and Architectural Engineering  
The University of Kansas  
Lawrence, KS 66045

APPROVALS:



David Darwin,  
Principal Investigator



Barbara J. Armbrister,  
Director, Research Administration

This is a proposal from the University of Kansas to the Kansas Department of Transportation for the period July 1, 2008 to June 30, 2013. The University of Kansas accepts full responsibility for the project and its conduct. The University will bill KDOT for reimbursement as specified in the contract as awarded. For the purposes of administrative efficiency, the University will subcontract to the Center for Research, Inc. (KUCR), as KUCR is the normal administrative agency for projects under the University of Kansas. This subcontractual arrangement will in no way affect the work on the project, the scientific personnel, or the billing between the University and the Department of Transportation.

THE UNIVERSITY OF KANSAS



Barbara J. Armbrister, Director  
Research Administration  
2385 Irving Hill Road  
Lawrence, Kansas 66045-7563  
Phone: (785) 864-3441  
FAX: (785) 864-5025

8/14/08

Date

## **CONSTRUCTION OF CRACK-FREE CONCRETE BRIDGE DECKS, PHASE II**

### **General Problem Statement**

Cracks in concrete bridge decks provide easy access for water and deicing chemicals that shorten the life of the deck. Both materials increase the effects of freeze-thaw damage, while the deicing chemicals lead to higher concentrations of chlorides, and subsequently, corrosion of reinforcing steel. Measurements taken on bridges in Kansas show that dense, high quality concrete can significantly slow the penetration of chlorides to the level of the reinforcing steel. However, measurements taken at cracks show that the chloride content of the concrete can exceed the corrosion threshold at the level of the reinforcing steel by the end of the first winter. The formation of cracks, thus, significantly lowers the effectiveness of other techniques that are used to increase the life of a deck.

### **Background**

Research, some of which dates back nearly 40 years, has addressed the causes of cracking in bridge decks in North America. The research includes three detailed bridge deck surveys carried out by the University of Kansas since 1993. The results of the studies provide specific guidance on modifications in materials and construction techniques that will reduce the amount of cracking in bridge decks: Settlement cracks, transverse deck cracks that form immediately over reinforcing bars, can be reduced with increased cover, decreased bar size, and decreased concrete slump. Shrinkage cracks can be reduced by decreasing the volume of water and cement, and maintaining an air content above 6%. Optimized aggregate gradations can be used to minimize the cement paste constituent of concrete, and workability can be enhanced at reduced

paste contents using water reducers and superplasticizers. Increased compressive strength, normally associated with high-performance concrete, often has a negative impact on cracking. During construction, plastic shrinkage cracks increase as the rate of evaporation from the concrete surface increases. Even when plastic shrinkage cracking is not specifically observed, conditions associated with high evaporation rates are also associated with increased total cracking in the completed deck, due to movement of plastic concrete. Techniques such as wind breaks and fogging have had a positive impact on the problem, as has thorough curing of the concrete. The crack surveys by the University of Kansas demonstrate that, in general, cracking increases with increased age. However, concretes cast in different eras exhibit significantly different amounts of cracking – decks in Kansas cast between 1983 and 1987 average less than half the crack density of bridges cast since 1990 suggesting that changes in construction methods and materials have had a major impact. Examples include the use of progressively finer portland cement, higher cement paste contents needed to produce pumpable concrete, and increased paste contents at the upper surface of decks that result from increased finishing and the use of “finishing aids.”

In spite of this accumulation of knowledge, only a small number of these findings have been used to implement changes in bridge deck design and construction procedures. In specific cases, on-site observations indicate that it is possible to develop nearly crack-free bridge decks, if “best practices” are followed. Even with these few successes, most bridge decks exhibit significant cracking, exposing the reinforcing steel to deicing chemicals and subsequent corrosion and increasing the degree of saturation, which increases the impact of freeze-thaw cycles. The current level of understanding, however, offers strong direction for constructing bridge decks with minimum cracking.

This improved understanding has been put to use during the first phase of this study, in which 18 low-cracking, high-performance concrete (LC-HPC) bridge decks, with an equal number of control decks, are planned for construction. The decks involve the use of low cement and water contents, increased air contents, optimized aggregate gradations that produce pumpable, workable, placeable, finishable concrete with cement contents as low as 535 lb per cubic yard, temperature control during placement, limited finishing, and early curing. Of the 14 decks let in Kansas to date, construction costs for all but the first two have been about the same as those of the control decks (some a little higher and some a little lower). The first three decks in Kansas have been surveyed and exhibit crack densities equal to between zero and 10% of that observed on conventional decks. To date, the study has been successful in identifying low-cracking portland cement concrete mixes. Several additional approaches, however, have been identified that have the potential to increase the benefits of the project, including using mineral admixtures, shrinkage reducing admixtures, new sources of aggregate, and new approaches to finishing. These approaches cannot be fully exploited in Phase I. Data indicates that, when coupled with internal curing (provided by fully or partially saturated KDOT approved limestone with 2 ½ - 3% absorption), using blast furnace slag as a replacement for portland cement can reduce drying shrinkage by an additional 40%. Two other mineral admixtures, fly ash and silica fume (microsilica), are also under investigation, although with less advantageous results. They will continue to be evaluated, however, because of their widespread use and the desire to construct decks with minimum permeability (achieved using silica fume) and environmentally beneficial waste materials (fly ash). The new mixes must be investigated for their shrinkage and freeze-thaw properties, as well as construction

qualities, especially the ability to use pumps to place the new mixes. Optimum procedures for concrete placement and fogging will continue to be areas of special emphasis. Finishing techniques have been restricted in the current study. Additional work is necessary to determine if some of the restrictions (principally on the placement and finishing equipment) may be lifted.

**Benefits:**

State departments of transportation expend significant effort and resources on the construction of durable reinforced concrete bridges and bridge decks. Existing data indicates that specific modifications to construction procedures, materials, and design details will significantly reduce the degree of cracking in bridge decks and, thus, reduce exposure of reinforcing steel to the corrosive effects of deicing chemicals and decrease freeze-thaw damage. Of the two, corrosion is by far the greater problem. The project provides a mechanism for combining ideas from research and practice to develop a comprehensive strategy for the construction of bridge decks. If successful, as demonstrated to date, the result will be a major reduction in bridge deck cracking, an improvement in durability, and an increase in the useful life of bridges. A great deal is known about the factors that affect cracking in bridge decks – the goal of the proposed effort is to implement that knowledge.

**Work Plan and Schedule**



The purpose of this study is to implement the most cost-effective techniques for improving bridge deck life through the reduction of cracking. The work involves cooperation between state departments of transportation, cement companies, contractors, and designers. The following tasks will be used to achieve this objective.

1. Update plans to construct bridge decks with minimum cracking by incorporating "best practices" dealing with materials, construction procedures, and structural design. This step involves improving techniques in use in Phase I and meeting with department of transportation personnel from multiple states, as well as other experts, to select the procedures to be used and the bridge types to which they will be applied.

2. Perform laboratory work to evaluate the effects of slag cement, fly ash, silica fume, shrinkage reducing admixtures, and internal curing on the performance of concrete mixtures for use on LC-HPC decks.

3. Work with state DOTs, designers, contractors, inspectors, and material suppliers to modify designs, specifications, contracting procedures, construction techniques, and materials to obtain decks exhibiting minimal cracking.

4. Select and schedule bridges to be constructed using "best practices," and pre-qualify designers and contractors in application of the techniques. To date, 14 bridges in Kansas, two in South Dakota, one in Minnesota, and one in Missouri have been identified for construction. Twenty additional bridges are proposed for Phase II. Researchers from the University of Kansas and state DOT personnel will work closely with designers and contractors to achieve the desired results. Pre-qualification of

designers and contractors includes the presentation of workshops sponsored by the University of Kansas to help educate and train engineers in implementing the "best-practices" identified in Tasks 1 and 2.

5. Perform detailed crack surveys on the bridge decks one year, two years, and three years after construction. The surveys are performed using techniques developed at the University of Kansas that involve identifying and measuring all cracks visible on the upper surface of the bridge deck. The majority of the early surveys will be done by the University of Kansas. As the project progresses, teams outside of the State of Kansas will be trained in the survey techniques. Three teams in South Dakota have been trained to date.

6. Correlate the cracking measured in Task 4 with environmental and site conditions, construction techniques, design specifications, and material properties and compare with earlier data. Similar data from participating states, where it exists, will be incorporated in the analysis. Actual costs and future cost estimates will be compared with potential benefits.

7. Document the results of the study. A final report will be prepared and disseminated to participating states regarding the findings of Tasks 1-5.

8. Update the training program developed (and currently being presented) in Phase I to assist the participating states in implementing the findings of the study. The program consists of workshops to be held at the representative state DOT offices. These workshops are individually coordinated with each participating DOT.

A technical committee, structured with one representative from each state providing funds, will oversee the project. A meeting of the committee will be held each year, as has been done for Phase I. The first meeting is scheduled for July 24, 2008.

### **Schedule**

<u>Task</u>	<u>Months</u>
1. Update plans	1 – 24
2. Perform laboratory work to establish best practices	1 – 48
3. Modify designs, and update specifications, contracting procedures, construction techniques, and materials requirements	1 – 48
4. Select and schedule bridges; provide advice on bridge construction; develop training program and present workshops	1 – 48
5. Perform crack surveys	1 – 60
6. Correlate findings and develop cost-benefit estimates	36 – 60
7. Prepare final report	48 – 60
8. Update training program	48 – 60

### **Proposed Budget**

The proposed budget for \$975,000 (see following pages) covers the period 7/1/08 – 6/30/13. The period of performance includes a six-month unfunded, no-cost extension to 12/31/13. The \$975,000 will be matched by an additional \$500,000 from the University of Kansas Transportation Research Institute.

The individual state departments of transportation will provide traffic control and support personnel during crack surveys (Task 5) and meeting space for workshops (Tasks 8 and 8). State departments of transportation will construct 20 bridges, as described in Task 4.

**PROPOSED BUDGET**

Year 1: 07/01/08 - 06/30/09

						Amount
<b>SALARIES AND WAGES</b>						
<u>Senior Personnel</u>						
	% time	Months	Rate			
David Darwin, PI						
summer	100	1.5	19,060	28,590		
JoAnn Browning, Co-I						
summer	100	1.5	9,444	<u>14,166</u>		
Total senior personnel				42,756		
<u>Other Personnel</u>						
	Persons	% time	Months	Rate		
<u>Graduate Student(s)</u>						
acad	2.0	50	9.0	2,950	26,550	
summer	2.0	50	3.0	2,950	8,850	
<u>Undergraduate Student(s)</u>						
calendar			Hours	Rate		
			555.6	9.00	<u>5,000</u>	
Total other personnel				<u>40,400</u>		
Total salaries and wages				83,156		
<b>FRINGE BENEFITS</b>						
32% faculty and staff				13,682		
12% students (employed 76% or more)				0		
4% students (employed 75% or less)				<u>1,616</u>		
Total fringe benefits				<u>15,298</u>		
Total salaries, wages & fringe benefits				98,454		
<b>TRAVEL</b>						
<i>(a) to east/west coast for professional meeting</i>						
	# Persons	Trips	Days	Amount		
	2	1	3			
Total (a)				1,000		
<i>(b) to bridge site and training sessions - KS and other states</i>						
Transportation - mileage at current State of Kansas rate, airfare				4,333		
Per diem				<u>1,000</u>		
Total (b)				<u>5,333</u>		
Total travel				6,333		
<b>OTHER DIRECT COSTS</b>						
Research materials & supplies				500		
Publications (copying and distribution of research results)				500		
Other:						
Tuition:	Fall 08	Spring 09	Sum 09			
	3002	3002	1064	14,136		
Communications (long distance, fax, postage)				9,000		
Travel for state representatives				9,000		
Total "Other"				<u>23,136</u>		
Total Other Direct Costs				<u>24,136</u>		
<b>TOTAL DIRECT COSTS</b>				128,923		
<b>BASE</b>				114,787		
<b>INDIRECT COSTS</b> (44% of total direct costs excluding equipment and tuition allowance)				50,506		
<b>TOTAL PROPOSED COSTS - YEAR 1</b>				<b>\$179,429</b>		

**PROPOSED BUDGET**

Year 2: 07/01/09 - 06/30/10

					Amount
<b>SALARIES AND WAGES</b>					
<u>Senior Personnel</u>					
	% time	Months	Rate		
David Darwin, PI					
summer	100	1.0			20,013
JoAnn Browning, Co-I					
summer	100	1.0			9,916
Total senior personnel					29,929
<u>Other Personnel</u>					
	Persons	% time	Months	Rate	
<u>Graduate Student(s)</u>					
acad	2.0	50	9.0	3,112	28,008
summer	2.0	50	3.0	3,112	9,336
<u>Undergraduate Student(s)</u>					
calendar			Hours	Rate	
			555.6	9.00	5,000
Total other personnel					42,344
Total salaries and wages					72,273
<b>FRINGE BENEFITS</b>					
32% faculty and staff					9,577
12% students (employed 76% or more)					0
4% students (employed 75% or less)					1,694
Total fringe benefits					11,271
Total salaries, wages & fringe benefits					83,544
<b>TRAVEL</b>					
<i>(a) to east/west coast for professional meeting</i>					
	# Persons	Trips	Days	Amount	
	2	1	3		
Total (a)					1,000
<i>(b) to bridge site and training sessions - KS and other states</i>					
Transportation - mileage at current State of Kansas rate, airfare				4,333	
Per diem				1,000	
Total (b)					5,333
Total travel					6,333
<b>OTHER DIRECT COSTS</b>					
Research materials & supplies					500
Publications (copying and distribution of research results)					500
Other:					
Tuition:	Fall 09	Spring 10	Sum 10		
	3160	3160	1116		14,872
Communications (long distance, fax, postage)					9,000
Travel for state representatives					23,872
Total "Other"					24,872
Total Other Direct Costs					114,749
<b>TOTAL DIRECT COSTS</b>					114,749
<b>BASE</b>					99,877
<b>INDIRECT COSTS</b> (44% of total direct costs excluding equipment and tuition allowance)					43,946
<b>TOTAL PROPOSED COSTS - YEAR 2</b>					<b>\$158,695</b>

**PROPOSED BUDGET**

Year 3: 7/1/10 - 06/30/11

						Amount
<b>SALARIES AND WAGES</b>						
<u>Senior Personnel</u>						
		% time	Months	Rate		
David Darwin, PI						
summer		100	1.0		21,014	
JoAnn Browning, Co-I						
summer		100	1.0		<u>10,412</u>	
Total senior personnel					31,426	
<u>Other Personnel</u>						
	Persons	% time	Months	Rate		
<u>Graduate Student(s)</u>						
acad	2.0	50	9.0	3,283	29,547	
summer	2.0	50	3.0	3,283	9,849	
<u>Undergraduate Student(s)</u>						
calendar			Hours	Rate		
			555.6	9.00	<u>5,000</u>	
Total other personnel					<u>44,396</u>	
Total salaries and wages					75,822	
<b>FRINGE BENEFITS</b>						
32% faculty and staff					10,056	
12% students (employed 76% or more)					0	
4% students (employed 75% or less)					<u>1,776</u>	
Total fringe benefits					<u>11,832</u>	
Total salaries, wages & fringe benefits					87,654	
<b>TRAVEL</b>						
<i>(a) to east/west coast for professional meeting</i>						
	# Persons	Trips	Days	Amount		
	2	1	3			
Total (a)					1,000	
<i>(b) to bridge site and training sessions - KS and other states</i>						
Transportation - mileage at current State of Kansas rate, airfare				4,333		
Per diem				<u>1,000</u>		
Total (b)					<u>5,333</u>	
Total travel					6,333	
<b>OTHER DIRECT COSTS</b>						
Research materials & supplies					500	
Publications (copying and distribution of research results)					500	
Other:						
Tuition:	Fall 10	Spring 11	Sum 11			
	3326	3326	1172		15,648	
Communications (long distance, fax, postage)					9,000	
Travel for state representatives					<u>24,648</u>	
Total "Other"					<u>25,648</u>	
Total Other Direct Costs					119,635	
<b>TOTAL DIRECT COSTS</b>						
<b>BASE</b>						
<b>INDIRECT COSTS</b> (44% of total direct costs excluding equipment and tuition allowance)						
						45,754
<b>TOTAL PROPOSED COSTS - YEAR 3</b>						<b>\$165,389</b>

**PROPOSED BUDGET**

Year 4: 7/1/11 - 06/30/12

					Amount
<b>SALARIES AND WAGES</b>					
<u>Senior Personnel</u>					
	% time	Months	Rate		
David Darwin, PI					
summer	100	1.0			22,065
JoAnn Browning, Co-I					
summer	100	1.0			10,933
Total senior personnel					32,998
<u>Other Personnel</u>					
	Persons	% time	Months	Rate	
<u>Graduate Student(s)</u>					
acad	2.0	50	9.0	3,464	31,176
summer	2.0	50	3.0	3,464	10,392
<u>Undergraduate Student(s)</u>					
calendar			Hours	Rate	
			555.6	9.00	5,000
Total other personnel					46,568
Total salaries and wages					79,566
<b>FRINGE BENEFITS</b>					
32% faculty and staff					10,559
12% students (employed 76% or more)					0
4% students (employed 75% or less)					1,862
Total fringe benefits					12,421
Total salaries, wages & fringe benefits					91,987
<b>TRAVEL</b>					
<i>(a) to east/west coast for professional meeting</i>					
	# Persons	Trips	Days	Amount	
	2	1	3		
Total (a)					1,000
<i>(b) to bridge site and training sessions - KS and other states</i>					
Transportation - mileage at current State of Kansas rate, airfare				4,333	
Per diem				1,000	
Total (b)					5,333
Total travel					6,333
<b>OTHER DIRECT COSTS</b>					
Research materials & supplies					500
Publications (copying and distribution of research results)					500
Other:					
Tuition:	Fall 11	Spring 12	Sum 12		
	3481	3481	1223		16,370
Communications (long distance, fax, postage)					7,424
Travel for state representatives					23,794
Total "Other"					24,794
Total Other Direct Costs					
<b>TOTAL DIRECT COSTS</b>					123,114
<b>BASE</b>					106,744
<b>INDIRECT COSTS</b> (44% of total direct costs excluding equipment and tuition allowance)					46,967
<b>TOTAL PROPOSED COSTS - YEAR 4</b>					<b>\$170,081</b>

**PROPOSED BUDGET**

Year 5: 7/1/12 - 06/30/13

					Amount
<b>SALARIES AND WAGES</b>					
<u>Senior Personnel</u>					
	% time	Months	Rate		
<i>David Darwin, PI</i>					
summer	100	1.0			23,168
<i>JoAnn Browning, Co-I</i>					
summer	100	1.0			<u>11,480</u>
Total senior personnel					34,648
<u>Other Personnel</u>					
	Persons	% time	Months	Rate	
<i>Graduate Student(s)</i>					
acad	4.0	50	9.0	3,655	65,790
summer	4.0	50	3.0	3,655	21,930
<i>Undergraduate Student(s)</i>					
calendar			Hours	Rate	
			2500.0	9.00	<u>22,500</u>
Total other personnel					<u>110,220</u>
Total salaries and wages					144,868
<b>FRINGE BENEFITS</b>					
32% faculty and staff					11,088
12% students (employed 76% or more)					0
4% students (employed 75% or less)					<u>4,409</u>
Total fringe benefits					<u>15,497</u>
Total salaries, wages & fringe benefits					160,365
<b>TRAVEL</b>					
<i>(a) to east/west coast for professional meeting</i>					
	# Persons	Trips	Days	Amount	
	2	2	3		
Total (a)					3,000
<i>(b) to bridge site and training sessions - KS and other states</i>					
Transportation - mileage at current State of Kansas rate, airfare				5,745	
Per diem				<u>900</u>	
Total (b)					<u>6,645</u>
Total travel					9,645
<b>OTHER DIRECT COSTS</b>					
Research materials & supplies					1,000
Publications (copying and distribution of research results)					500
Other:					
Tuition:	Fall 12	Spring 13	Sum 13		
	3645	3645	1278		34,272
Communications (long distance, fax, postage)					
Travel for state representatives					14,000
Total "Other"					<u>48,272</u>
Total Other Direct Costs					<u>49,772</u>
<b>TOTAL DIRECT COSTS</b>					219,782
<b>BASE</b>					185,510
<b>INDIRECT COSTS</b> (44% of total direct costs excluding equipment and tuition allowance)					81,624
<b>TOTAL PROPOSED COSTS - YEAR 5</b>					<b>\$301,406</b>
<b>TOTAL PROPOSED COSTS - YEAR 1-5</b>					<b>\$975,000</b>



## VI. Project Personnel:

The project will be directed by the principal investigators, David Darwin, Ph.D., P.E., Deane E. Ackers Distinguished Professor of Civil Engineering and Director of the Structural Engineering and Materials Laboratory, and JoAnn Browning, Ph.D., P.E., Associate Professor of Civil Engineering at the University of Kansas. Darwin has extensive experience in concrete materials, the causes and control of cracking in concrete decks, and bridge deck evaluation. He has directed three bridge deck evaluation studies for KDOT. He is an active researcher in both reinforced concrete and steel-concrete composite structures, and is past chairman of American Concrete Institute Committees 224, Cracking, and 408, Bond and Development of Reinforcement, and the American Society of Civil Engineers Committee on Composite Construction. Browning is an expert on reinforced concrete, with experience in field studies of both bridges and engineering materials. Browning has been a member of the team since the beginning of the current project and helps to lead efforts to reduce cracking and corrosion of reinforcement in bridge decks. She is also member of ACI Committee 408, Bond and Development of Reinforcement. Darwin and Browning are also co-directing a long-term study on bridge deck durability with emphasis on selecting cost-effective corrosion protection systems.

Professors Darwin and Browning will be assisted in this study by student researchers in the School of Engineering at the University of Kansas who have the appropriate training in reinforced concrete and composite structures.

### **Reports/Deliverables**

The deliverables for the proposed project are (1) a training program for state DOT personnel, designers, and contractor, (2) assistance in developing plans and specifications for LC-HPC bridge decks, (3) on-site assistance in support of bridge construction, and (4) a technical report documenting the research procedures and results. Progress reports will be provided on a quarterly basis.

### **Recommended Implementation Plan**

The implementation program will consist of (1) the presentation of workshops to state departments of transportation describing the procedures and findings developed in this study, (2) the modification of design and construction specifications to place the findings into practice, (3) onsite assistance in support of bridge construction, (4) the performance of crack surveys to monitor new bridges, and (5) the implementation of findings developed following the study to continually improve design and construction techniques for minimal cracking in reinforced concrete bridge decks.

State of Kansas  
 Department of Administration  
 DA-146a (Rev. 1-01)

## CONTRACTUAL PROVISIONS ATTACHMENT

**Important:** This form contains mandatory contract provisions and must be attached to or incorporated in all copies of any contractual agreement. If it is attached to the vendor/contractor's standard contract form, then that form must be altered to contain the following provision:

"The Provisions found in Contractual Provisions Attachment (Form DA-146a, Rev. 1-01), which is attached hereto, are hereby incorporated in this contract and made a part thereof."

The parties agree that the following provisions are hereby incorporated into the contract to which it is attached and made a part thereof, said contract being the \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

1. **Terms Herein Controlling Provisions:** It is expressly agreed that the terms of each and every provision in this attachment shall prevail and control over the terms of any other conflicting provision in any other document relating to and a part of the contract in which this attachment is incorporated.
2. **Agreement With Kansas Law:** All contractual agreements shall be subject to, governed by, and construed according to the laws of the State of Kansas.
3. **Termination Due To Lack Of Funding Appropriation:** If, in the judgment of the Director of Accounts and Reports, Department of Administration, sufficient funds are not appropriated to continue the function performed in this agreement and for the payment of the charges hereunder, State may terminate this agreement at the end of its current fiscal year. State agrees to give written notice of termination to contractor at least 30 days prior to the end of its current fiscal year, and shall give such notice for a greater period prior to the end of such fiscal year as may be provided in this contract, except that such notice shall not be required prior to 90 days before the end of such fiscal year. Contractor shall have the right, at the end of such fiscal year, to take possession of any equipment provided State under the contract. State will pay to the contractor all regular contractual payments incurred through the end of such fiscal year, plus contractual charges incidental to the return of any such equipment. Upon termination of the agreement by State, title to any such equipment shall revert to contractor at the end of State's current fiscal year. The termination of the contract pursuant to this paragraph shall not cause any penalty to be charged to the agency or the contractor.
4. **Disclaimer Of Liability:** Neither the State of Kansas nor any agency thereof shall hold harmless or indemnify any contractor beyond that liability incurred under the Kansas Tort Claims Act (K.S.A. 75-6101 *et seq.*).
5. **Anti-Discrimination Clause:** The contractor agrees: (a) to comply with the Kansas Act Against Discrimination (K.S.A. 44-1001 *et seq.*) and the Kansas Age Discrimination in Employment Act (K.S.A. 44-1111 *et seq.*) and the applicable provisions of the Americans With Disabilities Act (42 U.S.C. 12101 *et seq.*) (ADA) and to not discriminate against any person because of race, religion, color, sex, disability, national origin or ancestry, or age in the admission or access to, or treatment or employment in, its programs or activities; (b) to include in all solicitations or advertisements for employees, the phrase "equal opportunity employer"; (c) to comply with the reporting requirements set out at K.S.A. 44-1031 and K.S.A. 44-1116; (d) to include those provisions in every subcontract or purchase order so that they are binding upon such subcontractor or vendor; (e) that a failure to comply with the reporting requirements of (c) above or if the contractor is found guilty of any violation of such acts by the Kansas Human Rights Commission, such violation shall constitute a breach of contract and the contract may be cancelled, terminated or suspended, in whole or in part, by the contracting state agency or the Kansas Department of Administration; (f) if it is determined that the contractor has violated applicable provisions of ADA, such violation shall constitute a breach of contract and the contract may be cancelled, terminated or suspended, in whole or in part, by the contracting state agency or the Kansas Department of Administration.  
  
Parties to this contract understand that the provisions of this paragraph number 5 (with the exception of those provisions relating to the ADA) are not applicable to a contractor who employs fewer than four employees during the term of such contract or whose contracts with the contracting state agency cumulatively total \$5,000 or less during the fiscal year of such agency.
6. **Acceptance Of Contract:** This contract shall not be considered accepted, approved or otherwise effective until the statutorily required approvals and certifications have been given.
7. **Arbitration, Damages, Warranties:** Notwithstanding any language to the contrary, no interpretation shall be allowed to find the State or any agency thereof has agreed to binding arbitration, or the payment of damages or penalties upon the occurrence of a contingency. Further, the State of Kansas shall not agree to pay attorney fees and late payment charges beyond those available under the Kansas Prompt Payment Act (K.S.A. 75-6403), and no provision will be given effect which attempts to exclude, modify, disclaim or otherwise attempt to limit implied warranties of merchantability and fitness for a particular purpose.
8. **Representative's Authority To Contract:** By signing this contract, the representative of the contractor thereby represents that such person is duly authorized by the contractor to execute this contract on behalf of the contractor and that the contractor agrees to be bound by the provisions thereof.
9. **Responsibility For Taxes:** The State of Kansas shall not be responsible for, nor indemnify a contractor for, any federal, state or local taxes which may be imposed or levied upon the subject matter of this contract.
10. **Insurance:** The State of Kansas shall not be required to purchase, any insurance against loss or damage to any personal property to which this contract relates, nor shall this contract require the State to establish a "self-insurance" fund to protect against any such loss of damage. Subject to the provisions of the Kansas Tort Claims Act (K.S.A. 75-6101 *et seq.*), the vendor or lessor shall bear the risk of any loss or damage to any personal property in which vendor or lessor holds title.
11. **Information:** No provision of this contract shall be construed as limiting the Legislative Division of Post Audit from having access to information pursuant to K.S.A. 46-1101 *et seq.*
12. **The Eleventh Amendment:** "The Eleventh Amendment is an inherent and incumbent protection with the State of Kansas and need not be reserved, but prudence requires the State to reiterate that nothing related to this contract shall be deemed a waiver of the Eleventh Amendment."

CERTIFICATION BY PROSPECTIVE PARTICIPANTS  
AS TO CURRENT HISTORY REGARDING DEBARMENT, ELIGIBILITY,  
INDICTMENTS, CONVICTIONS, OR CIVIL JUDGMENTS

BARBARA ARMBRISTER, Director, Research Administration, the University of Kansas, being duly sworn (or under penalty of perjury under the laws of the United States), certifies that, except as noted below, the University of Kansas or any person associated therewith in the capacity of director, officer, principal investigator, project director, manager, auditor, or any position involving the administration of federal funds:

- a) is not currently under suspension, debarment, voluntary exclusion, or determination of ineligibility by any federal agency;
- b) has not been suspended, debarred, voluntarily excluded or determined ineligible by any federal agency within the past 3 years;
- c) does not have a proposed debarment pending; and,
- d) has not been indicted, convicted or has a civil judgment rendered against (it) by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past 3 years.

Exceptions: \_\_\_\_\_  
\_\_\_\_\_

Providing false information may result in criminal prosecution or administrative sanctions.

8/14/08  
Date

Barbara Armbrister  
Barbara Armbrister  
Director, Research Administration

This project or contract is being funded in part by federal funds, and therefore the following certification applies:

CERTIFICATION FOR FEDERAL AID CONTRACTS

The following provision shall apply to all applicants for or recipients of federal funding on federal contracts, grants, loans, or cooperative agreements in excess of \$100,000, pursuant to 31 U.S.C. Section 1352: Sect. 319 of P.L. 101.121.

Each applicant for or recipient of any amount of federal funding shall signify in writing below the amount of federal funding applied for or received by this contract, loan, grant, or cooperative agreement, if known.

The prospective participant certifies, by signing below and submitting this bid, proposal, grant, loan, cooperative agreement, or contract, to the best of his or her knowledge and belief, that:

- 1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, 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 the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, 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 contract, grant, load, or cooperative agreement, the undersigned shall complete Standard Form LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions. (A copy of Standard Form LLL is attached.)

A disclosure form must also be submitted at the end of each calendar year quarter in which there occurs any event which requires disclosure or that materially affects the accuracy of the information contained in any previously filed disclosure form. The original of the disclosure form shall be submitted to: \_\_\_\_\_, the KDOT Project Manager for this project or contract.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Signature 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 and not more than \$100,000 for each such failure.

The prospective participant also agrees by signing below that he or she shall require that the language of this certification be included in all lower tier subcontracts which exceed \$100,000, and that such subrecipients shall certify and disclose accordingly. The originals of all disclosure forms submitted to the prime contractor by lower tiers shall be sent to the KDOT Project Manager named above.

Barbara Armbrister  
 Signature      Barbara Armbrister  
                     Director, Research Administration  
                     University of Kansas

8/14/08  
 Date

\_\_\_\_\_  
Title

University of Kansas  
 Agency

\_\_\_\_\_  
Amount of Federal Funds (if known)

\_\_\_\_\_  
Project or Contract No.