

WORK PLAN

Special Experimental Project No. 14 (SEP)

Alternative Contracting

Project: 18-81 KA-0410-01

Walnut St. (Ogden) NE to 0.3Mi W K-I13/Seth Child Road (Manhattan)

Riley County

October 1, 2009

A. Introduction:

The Kansas Department of Transportation (KDOT) submits this work plan for review and approval as an Alternate Pavement Type Bidding (APTB) project under the provisions of Special Experimental Project 14 (SEP-14) for the use of innovative contracting practices. KDOT has traditionally used life cycle cost analysis (LCCA) procedure to select pavement type.

The project in this work plan consists of reconfiguring the existing four-lane, unrestricted access K-18/ Ft. Riley Road to a separated 4-lane, limited access K-18 and an adjacent, parallel, two-lane Ft. Riley Boulevard providing transportation between Manhattan, Ogden, Ft. Riley, and Interstate 70. KDOT's traditional LCCA for the selection of surface type is showing that flexible and rigid alternates have nearly the same initial and life cycle costs. In this plan it is proposed to let these projects with an alternate surface type.

B. Purpose

The proposed alternate pavement type bidding is being considered by KDOT to take advantage of the cost competitive market between hot mix asphalt (HMA) and Portland cement concrete pavement (PCCP). Further, price instability in crude oil products, cement, and other pavement construction materials makes it difficult for the Agency to make a cost estimate that would be representative of the market prices at the time of the letting. The current estimated prices used to make the agency's estimate shows the alternates to be nearly equal in initial and life cycle costs. Selecting one alternative over the other is nearly a toss-up. One indirect cost feature that may influence the selection of one alternate over the other are commitments made by KDOT to local entities; i.e., the Cities of Manhattan and Ogden and Riley County, to match the pavement type typically used by the local agency to construct pavements tying local roadways to the relocated K-18 and Ft. Riley Boulevard, respectively. These appurtenant roadways will be owned and maintained by the local agencies. Neither of the two pavement industries considers this feature to be significant enough to adversely impact the bidding process. Both industries are eagerly anticipating the opportunity to bid on this project.

There are numerous occasions in the past where the LCCA shows the surfacing alternates to be very close in cost. With the fluctuating costs associated with paving materials and fewer lettings to obtain current costs there is a challenge to make accurate cost estimates. Competitive alternate bids could help ensure that the agency obtains the least cost alternate. In addition the alternate bid process would put the pavement type selection in the hands of the paving industries. This would be desirable since the industries frequently question decisions made by the agency regarding the selection process. Increasing demands on available highway fund is pressuring

KDOT to actively pursue methods that have the potential to enhance the use of limited tax dollars.

C. Scope

The scope of the project will include the design and construction of four lanes of pavement on a 7.34 mile corridor extending between Ogden, Kansas and Manhattan, Kansas. Southwest of Ogden, the continuation of K-18 provides access with Fort Riley and, ultimately, Interstate-70. The design work has included the required surveys, geotechnical work, pavement design, bridge design, drainage, and roadway design. The designs meet the current requirements of KDOT's Design Manual and AASHTO Standard Specifications for the Design of Highways and Bridges.

Construction will include new alignment of existing K -18 to improve geometric features, increase capacity, improve traffic flow and reduce uncontrolled access points for traffic. Construction will also redirect and separate traffic on Ft. Riley Boulevard by combining it with Skyway Drive, an existing side road providing an adjacent and parallel roadway accessing local businesses and the Manhattan airport. Construction will comply with KDOT's Standard Specifications for Highway Construction, edition 2007 and any special provisions. The pavement will be constructed using Quality Control and Quality Acceptance (QCIQA) specifications. The QCIQA characteristics monitored for PCCP are percent entrained air, slump of the concrete mixture, unit weight, in-place density, and individual aggregate gradation. Payment is based on pavement thickness and the compressive strength of the concrete. The QA/QC characteristics monitored for HMA are density, variation in aggregate gradation, voids in the mineral aggregate, and void filled with asphalt. Payment is based on in-place density, air voids, and thickness.

The Contractor will be obligated to construct the pavement section shown on the Plans according to the Standard Specifications. A grading template will be provided in the Plans for the proposed thickest pavement section. The successful bidder will be required to adjust the sub grade profile if needed to maintain the plan profile grade. KDOT will establish the pavement template for both the HMA and PCC pavement alternate. Both pavements will be constructed on a chemically stabilized subgrade.

D. Measurements

KDOT will advertise and solicit bids for these projects in its normal monthly letting cycle. A pre-bid conference will be held and all potential bidders will be required to attend. Prior to the letting, KDOT will provide the LCC value that will be added to the Contractors initial bid price for HMA or PCC pavement. The LCC will be for future actions between year 10 and 40 for HMA pavement and between year 20 and 40 for PCC pavement. The life cycle cost will be estimated using current bid item costs for the future actions. The future action costs are standard for KDOT's design process for both type of pavement. The life cycle cost will include a discount rate and will be presented as a present worth value. The successful bidder will be the Contractor with the least cost sum of the initial bid cost plus the life cycle cost (LCC) provided by KDOT.

E. Schedule

1. KDOT will advertise the project 30 days prior to the letting date.
2. KDOT will hold a pre-bid conference. All potential bidders will be required to attend.
3. Bids will be received and read.
4. Chief, Construction and Maintenance (C&M) will determine the low bid.
5. The State Transportation Engineer will award the contract to the lowest bidder based on sum of initial bid cost and LCC.
6. A notice to proceed with the contract will be issued by C&M approximately 60 days after award.

F. Reporting

KDOT will prepare and submit an initial and final report on the project. The initial report will include the paving industries reaction to the alternate bid type selection process. It will contain the individual bid items, quantity and cost for the work as well as the life cycle actions and estimated costs.

KDOT will prepare and submit a final report on the completion of the project. The evaluation will be prepared cooperatively by the Bureau Materials & Research, Bureau of Construction & Maintenance, Bureau of Design, District Construction Engineer and the Contractor. The final report will contain an overall evaluation of the process along with any suggestions and recommendations for improving the process.