**SOW Template for**

**Cost Risk Assessment (CRA)**

(Version date: 8/06/20)

**INSTRUCTIONS**

A CRA is required for all projects over $25 million.

This template provides the basic information, roles and responsibilities which a consultant design team should expect to perform as part of the Cost Risk Assessment process.

Contact the Agency VE/Project Risk Engineer to determine optimal timing and CRA workshop coordination activities specific to the project. It is strongly advised to contact Agency VE/Project Risk Engineer prior to finalizing this SOW to minimize the potential need for amendment.

**General Instructions for SOW Template**

To complete the CRA SOW, add the necessary project-specific detail in blue highlighted areas below. The information contained in ***Yellow-highlighted bold italics*** text provides some guidance as to where additional detail should be added to the SOW.

* Yellow highlight indicates instructions or notes that are deleted before finalizing the SOW for a WOC/Contract.
* Blue highlight indicates fields or provision that need to be reviewed and updated with project-specific information/requirements.
* Quantities. When entering quantities, the best practice is to use only the Arabic numeral and not spell out the numeral followed by the digit in parenthesis; i.e. - “3 weeks after NTP”.
* Delete text of any tasks that do not apply to the Project and label as “RESERVED” next to the task title. Contingency tasks that do not apply to a given Project can be deleted without marking as “RESERVED”, provided task numbering is revised if necessary.
* Send suggested revisions/updates to Kim Rice, OPO Technical Development Coordinator.

**Delete instructions throughout the document before executing Contract/WOC or amendment as follows:**

* From the “Edit” menu (or “Editing” menu on the “Home” ribbon) select “Replace”;
* With cursor in the “Find what” field, click “More” button, then “Format” then “Font” , then in the font field select “Arial” text ;
* Leave the “Replace with” field blank;
* **Click “Replace All”. This will delete all yellow highlighted text.]**

**TASK X COST RISK ASSESSMENT**

Agency will conduct a Cost Risk Assessment (“CRA”) prior to completion of DAP. A CRA is a process to evaluate quality and completeness of the Project cost estimate, quantify project risks, and provide a probabilistic risk based cost estimate. It includes a workshop with the Project Delivery Team (“PDT”) to identify, assess, quantitatively analyze Project risks, and provide modeling of the quantified Project risks to produce a probabilistic risk-based Project cost estimate.

Agency will supply the CRA facilitator and coordinate the risk modeling duties.

**Task X.1 Pre-CRA Workshop Activities**

***(Insert specific durations, after consulting with Agency VE/Project Risk Engineer. Otherwise, the following must be included without any additions, deletions or revisions)***

A total of 1 CRA workshop will be conducted. At the end of Project initiation, Consultant shall coordinate with APM and Agency VE/Project Risk Engineer to determine the dates of the CRA workshop.

The CRA process depends on an unbiased and accurate Project cost and schedule estimate. No less than 21 calendar days prior to the CRA workshop, Consultant shall provide a draft of the current Project cost estimate, including estimate supporting documentation such as plans, quantity take-offs, and estimate assumptions, for the purposes of Agency review and validation of the Project cost estimate through Agency’s Project Controls Office. Agency will provide draft cost estimate review comments to Consultant within 7 calendar days. In addition, Consultant shall provide a draft of the current Project schedule, including schedule supporting documentation such as estimated durations, productivities, and construction sequencing for the purposes of Agency review and validation of the Project schedule through the Agency’s Project Controls Office. Agency will provide draft cost estimate review comments to Consultant within 7 calendar days.

If the Project cost estimate is found to be unreasonably inaccurate or lacking sufficient detail, such as missing bid items, using obsolete bid items, loading contingency into individual bid items, or using lump sum values to cover a large range of bid items, Consultant shall revise the Project cost estimate based on comments received from Agency’s review and submit the final current Project cost estimate to Agency no less than 3 calendar days prior to the CRA workshop for final review. In addition, if the Project schedule is found to be unreasonably inaccurate of lacking sufficient detail, such as activity logic and linkages, use of start-to-start relationships, and open-ended schedule activities, Consultant shall revise the Project schedule based on comments received from Agency’s review and submit the final current Project schedule to Agency no less than 3 calendar days prior to the CRA workshop for final review.

No less than 7 calendar days prior to the CRA workshop, Agency will provide a pre-workshop memorandum to all parties involved with the CRA that includes: study dates, location, CRA workshop agenda, details concerning logistics, expectations of the team members related to participation and attendance, and a link to ProjectWise for Project documents.

**Deliverables and Schedule:**

* Project cost estimate, including cost estimate supporting documentation (electronic copy – e-mail) delivered to the APM no less than 21 calendar days prior to the CRA workshop
* Project schedule, including schedule supporting documentation (electronic copy – email) delivered to the APM no less than 21 calendar days prior to the CRA workshops
* Current project risk register (electronic copy –Excel file) delivered to the APM no less than 14 calendar days prior to the CRA Workshop
* If necessary, revised cost estimate, including documentation detailing revisions, (electronic copy – Excel file/PDF) delivered to the APM no less than 3 calendar days prior to the CRA workshop

**Task X.2 CRA Workshop Prep Meeting**

***(Insert specific durations and meeting length. Otherwise, the following must be included without any additions, deletions or revisions)***

At least 7 days prior to the CRA workshop, Consultant shall attend a virtual CRA workshop prep meeting. Consultant PM and CRA facilitator shall attend the CRA workshop prep meeting assumed to be 4 hours in length. Agency attendees will include CRA facilitator, APM and Agency subject matter experts (“SMEs”). The primary objectives of this prep meeting are:

* Discuss overview of the CRA workshop
* Review of the Project scope
* Review of major Project risks identified prior to the workshop
* Identify Project disciplines for risk analysis
* Determine how much time to devote to each discipline for risk analysis with SMEs
* Review and development of Project schedule flowchart
* Final overview of the validated Project cost estimate
* Discuss base variability and market conditions
* Confirm workshop attendee’s and agenda

**Deliverables and Schedule:**

* Participate in 1 CRA workshop prep virtual meeting.

**Task X.3 CRA Workshop**

***(Insert specific workshop durations and/or number of disciplines, after consulting with Agency VE/Project Risk Engineer. Otherwise, the following must be included without any additions, deletions or revisions)***

The CRA includes 1, 2-day workshop held at Agency’s offices in Region XX. Workshop participants must include Agency supplied CRA facilitator, Consultant Project team leads, and Agency discipline review staff. The workshop must include, at minimum, the following activities:

* Project overview
* Base cost estimate overview
* Review of CRA process to workshop participants
* Base schedule review
* Appropriate inflation and escalation rate distributions (variable or straight-line) and application methodologies
* Risk elicitation including risk description and documented assumptions regarding the risk
* Pre-risk response SME judgment regarding the risk’s probability of occurrence and impact to Project in terms of cost and schedule
* Development of a detailed risk response strategy
* Determination of the risk owner
* Post-risk response SME judgment regarding the risk and its probability of occurrence and impact to Project in terms of cost, scope, and schedule based on the actions of the response strategy

All Consultant discipline leads responsible for the preliminary engineering and design of the Project, which may include but is not limited to: bridge and structures, roadway, traffic, right of way, utilities, hydraulics, geotechnical, and environmental, shall attend and participate in the CRA workshop.

**Deliverables and Schedule**

* Consultant shall provide XX Consultant discipline leads to attend and participate in a1, 2-day CRA workshop on the dates agreed upon by Agency.