Introduction

The purpose of a Cost and Schedule Risk Assessment (CSRA) is to identify potential project cost and schedule risks, evaluate the probability of such risk occurring, and to assign a range of costs if such risk were to occur. Risks can either be a threat or an opportunity. Systematic identification of risk early in the Project helps the Department take steps to reduce or eliminate threats and to increase probability and/or benefit of opportunities. Another term for CSRA previously used by FHWA is Cost Estimate Review (CER).

The scope of the Major Project equals its NEPA limits, so the CSRA must include the entire NEPA scope, both fully funded and partially funded phases, plus prior costs. It includes past phases, phases approaching the start of procurement, and those future phases that may be decades out in the future. The scope of the CSRA must match the scope of the Initial Financial Plan (IFP), i.e., they must use the same project limits and FM numbers. If it is discovered that the scope of the CSRA and IFP are not the same, the CSRA workshop may have to be redone. This could result in delay of the Financial Plan approval and federal funds authorization. Design-Bid-Build projects may not be advertised until the Initial Financial Plan is approved. For Design-Build or P3 projects, FHWA can grant "conditional" federal authorization (up until NTP2) contingent upon FHWA's approval of the major project documents (PMP, IFP, CSRA).

CSRA Activities

FHWA has the option of conducting the CSRA themselves, but has chosen to delegate this task to FDOT on their behalf. FDOT must follow FHWA's ***Consultant-Led CER Guidance*** (internal SharePoint link) to ensure FHWA is fully involved in every step of the CSRA process. **FHWA must be included in all pre-workshop and workshop activities. The FDOT Project Manager (PM) must invite FHWA to all meetings, including prep sessions, base cost reviews, and risk workshops. FHWA must be copied on all draft and final reports. The FDOT PM is responsible for ensuring that FHWA is included in all CSRA activities.** Final CSRA reports must be approved by FHWA. Districts should follow up with FHWA to ensure there are no outstanding issues with the report.

CSRA Workshops

CSRA Workshops (CSRAs) are typically facilitated by an FDOT consultant using a Central Office consultant contract (*contact the Production Support Office for information on using the CO Contract*). Base cost reviews and CSRA workshops should have a virtual meeting available concurrent to any in-person meetings so that Central Office, FHWA, or other affected entities can participate.

FWHA requires that at least two CSRAs be conducted, the first workshop should be held at least 90 days ahead of NEPA approval and the second CSRA is held prior to starting procurement. These are commonly referred to as the "Pre-NEPA" and the "Pre-Construction" CSRAs. **CSRA workshop results are only good for one year.** The IFP must be approved within a year of the Pre-Construction CSRA workshop, otherwise an updated CSRA workshop is required. Additional CSRA workshops may be needed if future portions of the Project are unfunded or partially funded and the Financial Plan is phased.

At a CSRA workshop, multiple risks are identified and are assigned a cost range and the probability of occurrence. Base costs are stripped of contingencies and the CSRA process adds back an appropriate contingency based on a systematic risk assessment. Risks identified in the CSRA workshop are analyzed in a Monte Carlo simulation.

The CSRA Workshop results in several outputs including a 70th percentile cost (and schedule), a risk register, and a table identifying the top ten risks for the project (sometimes in the form of a "tornado diagram"). This is all included in the CSRA Report.

70th Percentile Threshold

One of the outputs of a CSRA workshop, is the 70th percentile (confidence level) cost. *In other words, FHWA is 70% sure that the Project's final total costs will be at or under this amount.* The difference between the base cost and the 70th percentile is considered to be the appropriate contingency for the project.

In order to receive federal authorization, programming must be at or above the 70th percentile as identified in the CSRA. Care must be taken to use the proper 70th percentile threshold in the Financial Plan, as the CSRAs typically report the 70th percentile in a variety of different ways and in different tables or graphs. The 70th percentile that is to be used in the Financial Plan should include all costs (including prior costs) and be in year-of-expenditure dollars (YOE$, escalated, inflated).

Prior to the CSRA Workshop, the Financial Plans Coordinator (in CO) will provide prior cost (expenditures) data to the CSRA consultant for the 70th percentile table in their report. The consultant must not ask the District for this data as there may be discrepancies. Any discrepancies between the item segment numbers provided by the District and those provided by the Financial Plans Coordinator, those must be resolved. The Financial Plan and CSRA must be based on the same set of FM numbers.

The Project Manager should share the 70th percentile results with the District Program Management Office to ensure that there are no surprises in regard to programming shortfalls. 70th percentiles should be generated in a manner that matches the procurement methodologies, for example, a major project that has multiple construction contracts will require 70th percentiles for each construction contract.

Once the CSRA report is finalized, the State Estimates Engineer and the District Project Manager should actively follow up with FHWA to make sure they have no concerns. Any lingering issues, questions, or problems with the CSRA can hold up approval of the IFP, resulting in delays in advertisement or awarding the project and receiving federal funds authorization.

For major projects that have multiple construction contracts, a 70th percentile should be established for each construction contract.

Risk Register

The project risk register documents the risks, their characteristics, probability of occurrence, quantitative impact (both negative and positive) and risk response strategies. The risk register is used to identify and manage risks throughout the life of the project. Risk management is a continual and iterative process because new risks may become known as the project progresses through its life cycle, previously-identified risks may be retired, and other risks may be updated.

Top 10 Risks

A table of the top 10 cost and schedule risks identified in the CSRA (typically represented as a "tornado" diagram in the CSRA), as well as their response strategies, are to be reported in the Initial Financial Plan. This table is updated in Financial Plan Annual Updates to reflect the District's risk response efforts.