

Project No. 08-114A

**Systematic Approach for Determining Construction
Contract Time: A Guidebook**

TECHNICAL MEMORANDUM

“Implementation Plan”

Prepared for
National Cooperative Highway Research Program (NCHRP)
Transportation Research Board

Of

The National Academies of Sciences, Engineering, and Medicine

TRANSPORTATION RESEARCH BOARD
OF THE NATIONAL ACADEMIES OF SCIENCES, ENGINEERING
AND MEDICINE

PRIVILEGED DOCUMENT

This report, not released for publication, is furnished only for review to members of or participants in the work of the CRP. This report is to be regarded as fully privileged, and dissemination of the information included herein must be approved by the CRP.

H. David Jeong, Douglas D. Gransberg, Ali Touran,
Kunhee Choi, and Michael Rahgozar

Texas A&M University
College Station, Texas
October 30, 2020

Implementation Plan

Even the best and most convincing research will be not successful if the research findings are not implemented to improve the current practices for better outcomes. This implementation plan lays out implementation activities that can promote the value of the NCHRP 08-114A guide to a wider audience and assist DOTs in applying the NCHRP 08-114A findings and guidance to their contract time determination processes.

1. Implementation Activities

The following section provides recommendations on how the research findings and/or products from NCHRP 08-114A may be best put into practice.

- 1) Develop an "intro to" webinar that can be delivered via TRB webinar series to different disciplinary audiences.
- 2) Develop a 3 to 4-hour asynchronous remotely delivered training course on how to implement the guide and tools developed to support it.
- 3) Set up a pilot implementation program with two or three interested DOTs. The ones that attended the guidebook vetting workshop would be the first candidates.
- 4) Execute the pilot implementation program. The pilot implementation program will likely to have the following activities:
 - a) Select a) several projects in the final design stage with different characteristics that are delivered through different contracting methods, and b) several projects that are near completion in construction or recently completed.
 - Design-bid-build projects
 - Design-bid-build projects with incentives and disincentives
 - Design-build and/or Construction Manager-General Contractor projects
 - b) Develop and deliver a workshop for each DOT to simulate the implementation of the guide using the example project(s).
 - c) Implementation #1 - Use the guide to estimate the project duration and determine the contract time, and compare with the results from current practices for projects in the final design stage
 - d) Implementation #2 - Use the guide to facilitate the post-construction evaluation activities and document the results. Discuss and document the value of the guide by obtaining the participants including the DOT representatives and the involved contractors.
 - e) Conduct a workshop to discuss the results of the implementation program and develop necessary changes to the current practices including the current procedures, manuals, continuous training programs, etc.

2. Purpose of Key Implementation Activities

The specific goal and purpose of key implementation activities are as follows.

- 1) An “intro-to” webinar will promote the value and results of the guide to a wider audience through TRB webinar series
- 2) A training course will provide procedural details on “how-to” part of the guide
- 3) A pilot implementation program will provide an opportunity to directly apply the guide to a DOT’s current practices, quickly identify the value of the guide and areas for improvement and change, and develop an action plan for internal changes.

3. Institutions which may be interested in pursuing implementation activities

The NCHRP 08-114A research team has identified the following institutions which can lead efforts to apply the research findings and products from this project.

- *Texas DOT*
Texas DOT has been receiving constant pressure to meet the key project performance targets including project schedule performance since key performance indicators are now visually updated in a dashboard format on a website that is accessible by the general public. However, the trend of the project schedule performance since 2015 shows that the agency has failed to meet the schedule performance target. TxDOT has been putting a significant amount of efforts to improve their contract time performance by creating and offering new training programs for district offices, and updating their contract time determination guidance. This NCHRP project provides more than 20 contract time determination methods and tools which may be used to greatly augment their ongoing efforts to improve project schedule performance.
- *Michigan DOT*
Michigan DOT’s contract time developer participated in the Guidebook validation workshop in Dallas, TX, February 2020. Based on the participant’s assessment, Michigan DOT is relatively behind the other DOTs in terms of contract time determination processes. He indicated that most of the new tools that were developed in this project would significantly improve the agency’s contract time determination processes. A successful Michigan DOT’s Implementation of this project findings and products can be used as a benchmarking model for other interested DOTs.

4. Issues Affecting Implementation

The following issues may affect the potential implementation of research findings and/or products from NCHRP 08-114A. Possible actions to address these issues have also been identified and are described below.

- *Weak implementation leadership*
Establishment of a strong implementation leadership may be the most important element for successful implementation of a new process. Therefore, it is required to identify or

designate top management personnel (so called a champion(s)) and an implementation task force team/committee at the early stage of implementation. Depending upon the agency's organizational structure (for example, centralized organization versus de-centralized organization), the champion and the task force team could be composed of at the central agency level or at the district level accordingly. The task force team will be the most important vehicle to drive the entire implementation process from planning activities and monitoring the performance of the new process implementation. The champion(s) should be able to help with recruiting a task force, raising resources, increasing awareness, and other important tasks.

- *Poor performance evaluation and tracking during implementation*
Performance measurement and tracking of a new process is another important aspect that needs to be addressed. Without clear performance measurement and tracking methods, the implementation team may easily lose their focus and get demotivated. Measures of success should be identified before implementing a new process by the implementation team. The new process can be evaluated on various basis such as efficiency, productivity improvements, benefits to cost, return on investment, easy to use, and others. Also, a questionnaire, and interviews can be used throughout the implementation period to track the performance.

5. Metrics to track and measure the success of implementation activities

The following metrics may be used to track and measure the success of the planned implementation activities and report back to NCHRP.

- Number of sites (attendees and state listing) registered for the TRB webinar
- Number of DOTs and people who have completed the training course
- Number of DOTs that participated in the pilot implementation program
- Feedback surveys from participants of the pilot implementation program

6. Schedule for Implementation Activities

The schedule for implementation activities is expected to take 12 months as shown below.

Implementation Activity	Months											
	1	2	3	4	5	6	7	8	9	10	11	12
1. Develop an "Intro-to" webinar												
2. Develop and deliver training course materials												
3. Develop and execute pilot implementation programs for two or three DOTs												
4. Develop a report												