

# Guidebook for Selecting Highway Project Delivery Methods and Alternative Contracting Strategies - Schedule

## Draft Scope of Work

October 5, 2011

### Objective

The objective of this project is to develop a guidebook that discusses highway project delivery methods and alternative contracting strategies. The guidebook will discuss methodologies, both tested and experimental, for strategies and contract provisions that allow for project acceleration and risk minimization. The overarching objective is to:

- Develop a Guidebook to aid in the selection of project delivery methods, procurement procedures, and contract payment provisions based on their benefits and risks for each project.

### Background

Numerous project delivery methods and contracting strategies are available to highway agencies. A one-size-fits-all approach to design and construction does not facilitate the acceleration of project delivery or equitable allocation of project risk. However, the selection of an effective alternative approach is often difficult to make and to justify. Just as construction projects are unique, the delivery method, procurement procedure, and contract payment provisions should be unique to maximize the process for each individual project.

At issue are the terms surrounding project delivery methods. These terms can be confusing and even experienced professionals often misuse them. An additional goal of this project is to help solidify a common language for project delivery methods and alternate contracting strategies. This project will take a three-tier approach to providing this common language as follows:

- ***Project delivery method:*** the comprehensive process by which designers, constructors, and various consultants provide services for design and construction to deliver a complete project for the owner. The three most common delivery methods are design-bid-build, construction manager general contractor, and design-build.
- ***Procurement procedure:*** the process of purchasing and obtaining the necessary property, design, contracts, labor, materials, and equipment to build a project. Four common procurement procedures are low-bid, best-value, qualifications-based, and sole-source procurement.
- ***Contract payment provision:*** the contract language that defines how design and construction professionals receive payments for their services. Four common contract payment provisions are fixed price lump sum, guaranteed maximum price, cost plus fee, and cost reimbursable.

These three aspects of the delivery process have a great deal of influence on risk and potential project acceleration. Understanding how delivery methods, procurement procedures, contracting payment provisions interact will allow for more appropriate and justifiable project selection

### Complete Guidebook Work Tasks and Schedule

The research team generated seven work tasks for the completion of the Guidebook. After these work tasks are complete, they will provide a Guidebook on Selecting Highway Project Delivery Methods and Alternative Contracting Strategies. The schedule found below the Task Information provides a timeline of completing the entire Guidebook.

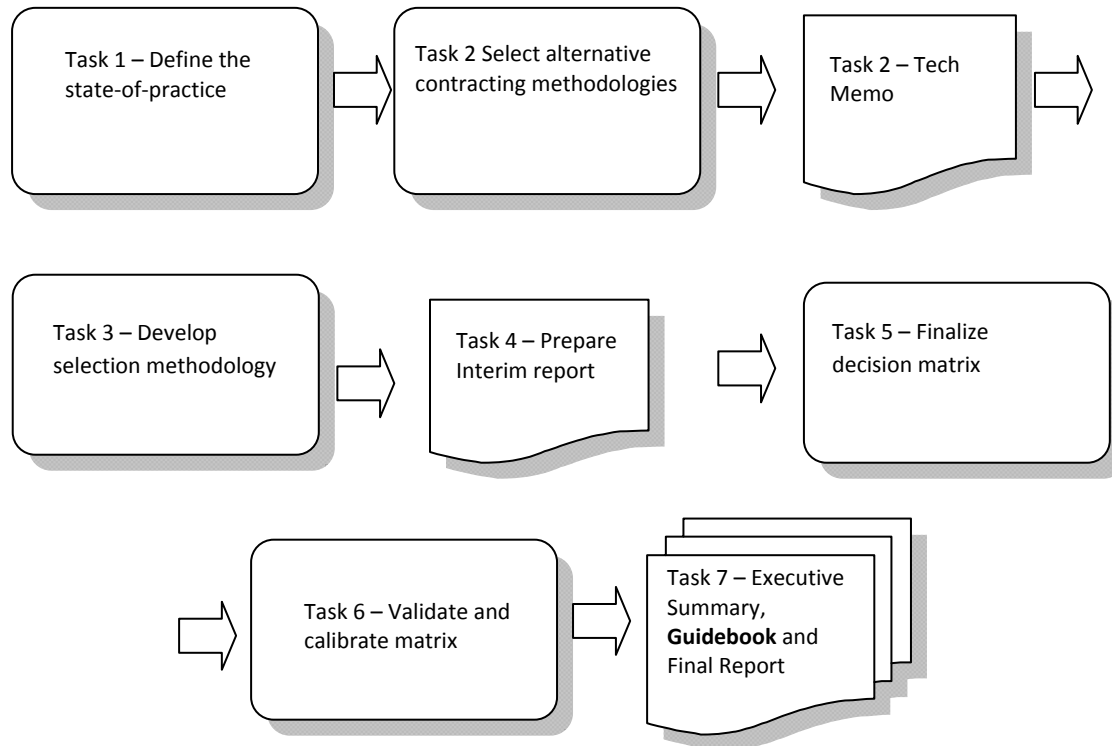


Figure 1: Overview of Guidebook Research Plan

### Task 1. Define the state-of-practice

- Collect and review relevant literature, research findings, and other appropriate material, inside and outside of the transit and highway industry. Most of the literature review has previously been completed for delivery methods. The research team will conduct additional reviews on procurement procedures and payment provisions. The primary focus of this task is to develop a framework of what is currently in practice for project delivery.

### Task 2. Select delivery methods, procurement procedures, and contract payment provisions

- Create a list of applicable delivery methods, procurement procedures, and payment provisions based on the findings in task 1. Provide definitions of the different methods.
- Determine and select appropriate delivery methods, procurement procedures, payment procedures, or a combination of the three that are useful for highway projects. Determining the appropriate set will involve using task 1 information as well as validating the collected data with a survey and interviews with key personnel in the highway construction industry.

### Task 3. Develop selection methodology

- Develop specific information around each selected contracting methodology from task 2 by describing and analyzing pertinent issues related to each project delivery method and alternative contracting strategy in terms of its application to transit in the United States.
- Develop benefits and drawbacks for each contracting methodology through the development of a framework and methodology for analyzing the advantages and disadvantages of the project delivery methods, procurement procedures, and contract payment provisions for use by

highway agencies in evaluating and selecting options. The research team will examine relevant case studies to determine possible pertinent issues as well as how to handle them properly.

- Develop benefits and drawbacks for common combinations of delivery, procurement, and contracting methods. This analysis will document, evaluate, and compare the merits of each respective type of project delivery method and alternative contracting strategy, discussing the advantages and disadvantages of each. The use of case studies and associated lessons learned will assist in developing proper benefits and drawbacks.

**Task 4. Prepare interim report**

- Prepare an interim report documenting the results of Tasks 1 through 3. The interim report shall also contain a **detailed annotated outline of the Guidebook** expanding upon the current annotated outline.

**Task 5. Develop decision support tool**

- Based on the results of tasks 1 through 4 and feedback from the Pool Fund Committee, develop a decision matrix at the macro level to guide decision makers on selecting the most appropriate project delivery method, procurement procedure and contract payment provision.

**Task 6. Validate and calibrate the decision support tool**

- Vet with current Pooled Fund Committee, CDOT employees and industry members to verify, validate, and calibrate a preliminary version of the Guidebook through workshops and interviews to verify Guidebook effectiveness.

**Task 7. Prepare final guidebook**

- Prepare the Guidebook, a stand-alone executive summary, and a final report documenting the entire research effort.

# Guidebook for Selecting Highway Project Delivery Methods and Alternative Contracting Strategies - Schedule

TASK	DESCRIPTION	2011			2012												2013											
		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	Define state-of-practice	█	█	█	█																							
2	Select contracting methodologies			█	█	█	█	█																				
3a	Develop specific information around each contracting methodology						█	█	█	█	█																	
3b	Develop interactional benefits and drawbacks for methodology combinations methods and contracting strategies							█	█	█	█	█																
3c	Examine how the Framework can be used to address traditional project delivery										█	█	█	█														
4	Prepare interim report / Draft of guidebook													█	█	█	█	█	█									
5	Develop decision support tool													█	█	█	█	█	█	█	█							
6	Validate and calibrate																			█	█	█	█	█				
7	Prepare final Guidebook, Executive Summary and Research Report																							█	█	█	█	█

Figure 2: Overview of Guidebook Research Plan

**PROPOSED BUDGET DETAILS**

Institution: The Regents of the  
University of Colorado  
572 UCB  
Boulder, Colorado 80309-0572

Title: Next Generation Transportation  
Construction Management

Principal Investigator: Keith Molenaar

Duration: 10/15/11 to 12/31/13

	Period 1 10 months	Period 2 12 months	Period 3 4 months	Total 26 months
<b>A. Salaries and Wages</b>				
Principal Investigator: Keith Molenaar				
100% time, 0.5 month AY	5,972	6,151	6,335	18,458
100% time, 1 month Summer	11,943	12,302	12,671	36,916
Grad Research Assistants: Harper Yrs 1-3, Tran Yrs 2-3				
1 - 50% time, 7 months AY, Period 1	12,281			12,281
2 - 50% time, 9 months AY, Period 2		32,527		32,527
2 - 50% time, 4 months AY, Period 3			14,890	14,890
2 - 50% time, 1.5 mos Sum (1), 3 mos Sum (2), 1.5 mos Sum (3)	5,316	10,896	5,584	21,796
<b>Total Salaries and Wages</b>	<b>35,512</b>	<b>61,876</b>	<b>39,480</b>	<b>136,867</b>
<b>B. Fringe Benefits</b>				
PI: 26.2%	4,694	4,835	4,980	14,508
GRA: 8.1%	1,425	3,517	1,658	6,601
<b>Total Fringe Benefits</b>	<b>6,119</b>	<b>8,352</b>	<b>6,638</b>	<b>21,109</b>
<b>C. Travel</b>				
Scientific Conference TBD, 2 Attendees				
Airfare: \$500, Per Diem: \$250 x 4 days				
Registration: \$500, Ground Transport: \$100	4,200	4,326	4,456	12,982
<b>Total Travel</b>	<b>4,200</b>	<b>4,326</b>	<b>4,456</b>	<b>12,982</b>
<b>D. Other Direct Costs</b>				
a. Tuition Remission	12,258	25,742	13,514	51,514
<b>Total Other Direct Costs</b>	<b>12,258</b>	<b>25,742</b>	<b>13,514</b>	<b>51,514</b>
<b>E. Total Direct Costs</b>	<b>58,089</b>	<b>100,295</b>	<b>64,088</b>	<b>222,472</b>
<b>F. Indirect Costs</b>				
20% of TDC as per guidelines	11,618	20,059	12,818	44,494
<b>G. Total Costs</b>	<b>\$69,707</b>	<b>\$120,354</b>	<b>\$76,906</b>	<b>\$266,967</b>