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2004 Annual Interim Report

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Table of Contents

List of Figures

List of Tables

1. Introduction

This report conveys significant findings from Research Project 0-4661 during the first year of investigation (September 2003 to September 2004). Information regarding project development is also provided.

During this first year, the following research products were produced:

- Research Product No. 1 - CDA Procurement Process Model (Research Report 0-4661-P1)
- Research Product No. 2 - Essential Elements of CDA Master Contract (Research Report 0-4661-P2)

First, findings regarding Research Product No. 1 are summarized, including a breakdown of the Comprehensive Development Agreement (CDA) procurement phases with durations and duration drivers, as well as lessons learned collected to date.

In the next section, results from Research Product No. 2 are conveyed, focusing on essential contract clauses and significant differences between CDA and traditional design-bid-build contracting.

Finally, the progress on Research Product No. 3 (Documentation of the SH130 Organizational Structure) is outlined.

2. Product No. 1: CDA Procurement Process

The first deliverable produced during the first year of research was a process model for Comprehensive Development Agreement (CDA) procurement, including a development and discussion of the CDA procurement process flowchart, its phase durations and duration drivers, and lessons learned to date regarding CDA procurement. These findings were included in Product No. 1: CDA Procurement Process Model (Research Report 0-4661-P1). That report provides a process model to conduct the procurement phase for a project operating under a CDA. The following subsections include some of the report findings.

2.1 Highlights of Product No. 1

2.1.1 Phases/Activities

Analyses of the SH130 procurement indicate that the CDA procurement process is accomplished in four key phases:

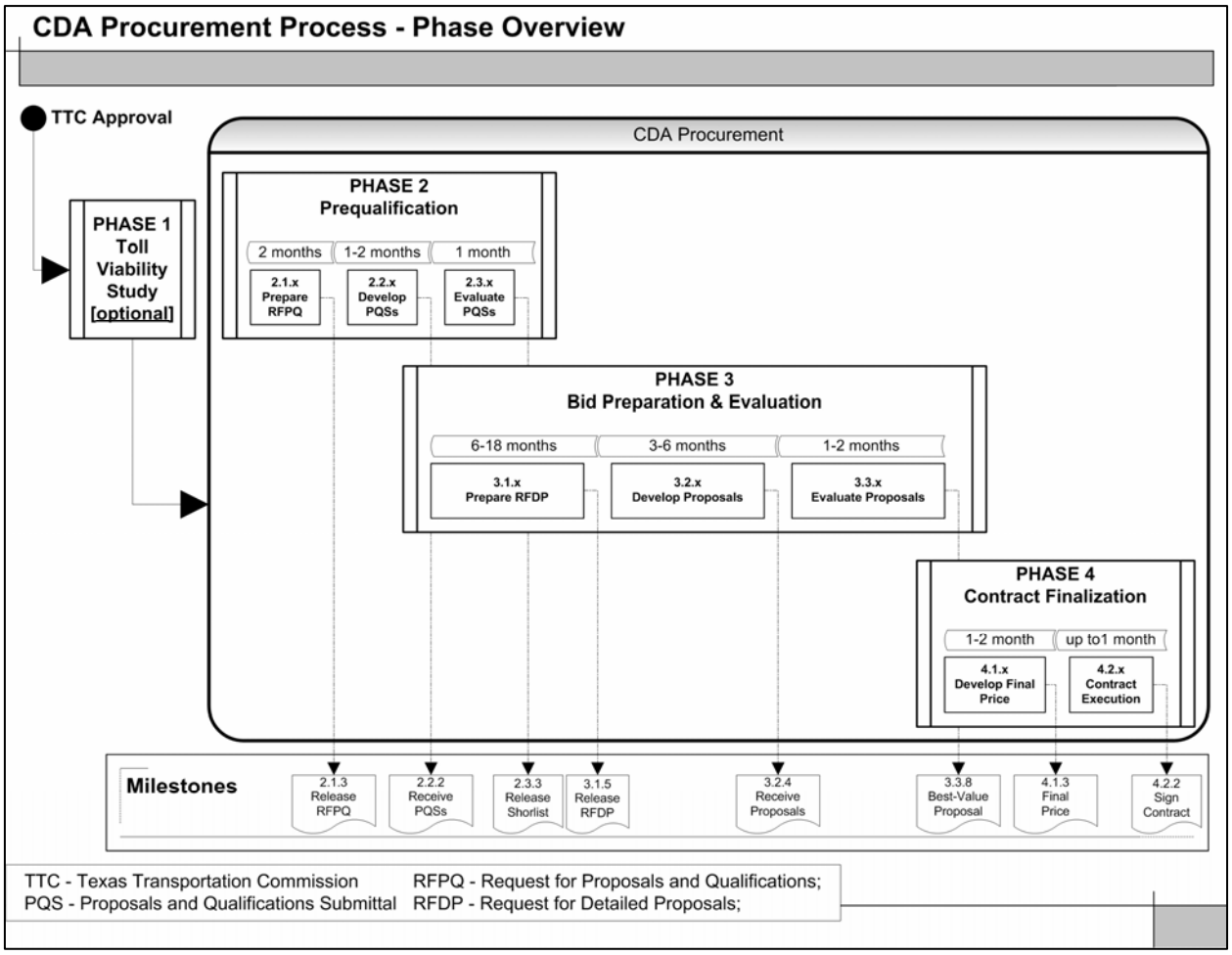
- Toll Viability Study
- Prequalification
- Proposal Preparation and Evaluation
- Contract Finalization

The resulting process map presents a way to address the procurement of a CDA project that includes results from lessons learned in the SH130 CDA. Researchers took into consideration lessons learned in term of sequencing activities collected by interviewing both SH130 and SH45 SE project representatives. Most of the lessons learned reflect similar findings reported from industry representatives across the country and included in the FHWA D-B Final Rule (FHWA, 2002). Incorporating experiences during SH45 SE project procurement was helpful in identifying differences between two CDA projects, one under SEP-14 (SH130), the other under the FHWA D-B Final Rule (SH45 SE).

The first phase in the process map—conducting the toll viability study—may be optional and is not covered in detail. It mostly depends upon factors external to the process, such as the financing needs and Texas Transportation Commission requests. When conducted, study conclusions provide a starting point for the Request for Detailed Proposal (RFDP) document.

The subsequent three phases are non-optional elements of CDA procurement. Activities within these three phases overlap as shown below and in Appendix A of Report 0-4661-P1 (Product No. 1).

Figure 2.1 Overview of Comprehensive Development Agreement Procurement Process with Schedule and Milestones



The Prequalification phase is subdivided into three subphases: initially, the Department prepares a Request for Proposals and Qualifications (RFPQ), then TxDOT interacts with interested parties pertaining to their submittals, and finally TxDOT evaluates the Proposals and Qualifications Submittal (PQS) before releasing a shortlist of qualified proposers.

During phase three (Bid Preparation and Evaluation), the Department prepares a Request for Detailed Proposals (RFDP). This document passes through an interactive stage with the short-listed firms during which risks are discussed and allocated between project parties. After public release of the final RFDP to short-listed firms, the Department interacts with interested parties by scheduling recurring rounds of one-on-one meetings. Finally, an evaluation of the submitted proposals is conducted in order to determine the firm offering the best value and to recommend it to the State Transportation Commission.

2.1.2 Durations

The following table presents information on typical durations for each phase. It also lists duration drivers as identified from project representatives.

Table 2.1 Phase Durations and Duration Drivers

Phase	SH130 Duration	SH45SE Duration	Recommended Duration	Key Duration Drivers
Toll Viability Study				
Pre-Qualifications	14 months	4 months	3–6 months	◆ Presence of Bond financing ◆ Presence of Developer financing
Bid Preparation and Evaluation	23 months	8 months	16–26 months	◆ Develop Preliminary Engineering ◆ Develop Geometric Design Engineering ◆ Conducting Industry Review - Allocate Risks ◆ Identify qualifications for developer key personnel ◆ Identify QA/QC role ◆ Evaluate Alternative Technical Concepts (ATC)
Contract Finalization	3 months	1 month	1–3 months	◆ Include ATC from unsuccessful proposers in final scope (SEP-14 only; N/A for FHWA D-B Final Rule) ◆ Texas Transportation Commission Schedule

2.1.3 Selected Lessons Learned

The following procurement process lessons are given based on interviews and findings during the first year of studies.

Before starting to prepare the RFPQ:

- Achieve a basic understanding of the project description in terms of location, characteristics, scope of work, and risk allocation.
- Make RFPQ documentation from other CDA projects available for consultation to project team.

In preparing the RFPQ document:

- Early in the process, release to legal counsel a status report on:
  - project's development
  - environmental clearance process
  - amount of preliminary engineering to include in the RFPQ

- Develop a suggested evaluation schedule before appointing the evaluation subcommittee members in order to understand needed size and qualifications that are crucial for achieving a streamlined evaluation process.

In interacting with interested parties for developing PQSs:

- If the project includes bonds or developer financing options, having one-on-one meetings with interested firms allows the TxDOT team to probe the reactions of the interested parties in terms of the requirements, and to take any necessary corrective action.

In developing the RFDP document:

- Start developing technical attachments earlier in the process to decrease process duration.
- Conduct interactive sessions between attorneys, engineering consultants, and the client early in the development of all the documents to improve the attorneys' understanding of the technical provisions, and to decrease the risk of overlapping or missing information by identifying which information goes in the contract and which needs to go in the technical provisions.

In conducting the industry review phase:

- Identify and monitor the status of other critical path activities, like environmental process status or preliminary engineering status to completion, in order to find the optimal trade-off between schedule and to benefit from the industry review process.
- Establish the number of one-on-one meetings depending on project complexity and procurement schedule pressure.

In developing the Proposals Evaluation Process:

- Prepare a suggested schedule for evaluations, and contact suggested subcommittee members to confirm their availability before appointing them.

In interacting with short-listed firms for developing detailed proposals:

- Allocate sufficient time between issuing the RFDP and the first round of meetings to allow proposers to thoroughly analyze the document and make comments.
- Schedule two different rounds of one-on-one meetings with an interval sufficient to (a) allow the legal counsel time to revise the document, (b) distribute it to the proposers in the form of addenda, and, (c) finally, allow the proposers to analyze it.

In forming the Alternative Technical Concepts (ATC) Evaluation Committee and Subcommittees:

- Understand size and qualifications needed to shorten the evaluation process enough to allow proposers to include specific ATCs in the final proposal.

In interacting with short-listed firms for selecting ATCs:

- There is a need for a pre-screening process to limit the effort in evaluating ATCs. For instance, defining a minimum dollar amount threshold for cost-saving ATCs can avoid time-consuming evaluations on ATCs less cost effective.

3. Product No. 2: Essential Elements of CDA Contracting

Another research deliverable produced in the first year of study was an overview of CDA Master Contract Elements, including a table of fundamental differences between CDA and traditional design-bid-build contracting, and a set of lessons learned pertaining to contract clauses. These findings were included in Product No. 2: Essential Elements of CDA Master Contract (Research Report 0-4661-P2). The primary purpose of this research product was to facilitate preparation of future CDA contracts. This document primarily includes findings from the State Highway 130 (SH130) project, but also incorporates some findings from the State Highway 45 South-East (SH45 SE) project. The following sections highlight key findings.

3.1 Highlights of Product No. 2

3.1.1 Essential Contract Topics/Sections

The first CDA contract for the SH130 project was structured into 29 sections plus 16 exhibits. The subsequent CDA contract for the SH45 SE streamlined that structure by grouping some sections or giving independence to others. The resulting contract structure included 24 sections and 15 exhibits. Table 3.1 gives a comparison of the contract structure for each.

Table 3.1 SH130 EDA versus SH45 SE CDA

SH130 EDA [Section]	Section / Sub-section	SH45 SE CDA [Section / Exhibit]
1	CONTRACT COMPONENTS	[1]
2	GENERAL FRAMEWORK AND OUTLINE OF TRANSACTION	[2, 19.2]
3	SCOPE OF DEVELOPMENT WORK; ROLE OF THE PARTIES AND LOCAL AGENCIES; EFFECT OF TESTS AND INSPECTIONS	[2.1, 2.2, 5.5]
4	INFORMATION SUPPLIED TO DEVELOPER; ACKNOWLEDGMENT BY DEVELOPER	[1.3, 1.4, 2.1.3]
5	TIME WITHIN WHICH PROJECT SHALL BE COMPLETED; PROJECT SCHEDULE AND PROGRESS	[4]
6	RIGHT OF WAY SERVICES	[6]
7	COMMENCEMENT OF CONSTRUCTION; CONSTRUCTION PROCEDURES; HAZARDOUS MATERIALS; NEW ENVIRONMENTAL APPROVALS	[4.4, 5.1, 5.2, 5.3, 5.4, 5.6, 6.9, 6.10]
8	DISADVANTAGED BUSINESS ENTERPRISE; CIVIL RIGHTS	[7]
9	PERFORMANCE AND PAYMENT SECURITY	[8]
10	INSURANCE	[9]
11	SITE SECURITY; RESPONSIBILITY FOR LOSS OR DAMAGE	[10.2, 10.3]
12	WARRANTIES	[11]
13	PAYMENT	[12, 22.9]
14	CHANGES IN THE DEVELOPMENT WORK	[13, 6.8]
15	SUSPENSION OF ALL OR PART OF THE WORK	[14]
16	TERMINATION FOR CONVENIENCE	[15]
17	DEFAULT	[16]
18	DAMAGES	[17]
19	LABOR AND EMPLOYMENT REQUIREMENTS	[7]
20	COMPLETION AND ACCEPTANCE	[20]
21	VALUE ENGINEERING (VE)	[22]
22	REPRESENTATIONS AND WARRANTIES	[2.2, 10.1]
23	INDEMNIFICATION; RELEASES	[18, 24.6]
24	TORT LIABILITY	[24.8]
25	DISPUTE RESOLUTION	[19, Ex-M]
26	DOCUMENTS AND RECORDS	[21]
27	COOPERATION AND COORDINATION WITH OTHER CONTRACTORS AND GOVERNMENTAL ENTITIES	[23]
28	GOVERNING LAW; COMPLIANCE WITH LAW AND REFERENCE STANDARDS	[1.4, 1.9, 24.9, Ex -D]
29	MISCELLANEOUS	[24, 1]
EX-A	ABBREVIATIONS & DEFINITIONS	[Ex -A]
EX-B	SCOPE OF WORK	Technical Provisions
EX-C	REFERENCE DOCUMENTS	[Ex -N]
EX-D	FEDERAL REQUIREMENTS	[Ex -D]
EX-E	AMENDMENTS, MODIFICATIONS AND SUPPLEMENTS TO TXDOT STANDARD SPECIFICATIONS	[Ex -B]
EX-F	MAXIMUM PAYMENT CURVE	[Ex -F]
EX-G	DBE PROGRAM	[Ex -G]
EX-H	FORM OF PERFORMANCE BONDS	[Ex -H]
EX-I	FORM OF PAYMENT BONDS	[Ex -I]
EX-J	FORM OF WARRANTY BOND	[Ex -O]
EX-K	FORM OF DRAW REQUEST AND CERTIFICATE	[Ex -J]
EX-L	QC/QA SUMMARY TABLES	No
EX-M	FORM DEVELOPER NOTE	No
EX-N	FORM OF CHANGE ORDER	[Ex -K]

SH130 EDA [Section]	Section / Sub-section	SH45 SE CDA [Section / Exhibit]
EX-O	INITIAL DESIGNATION OF AUTHORIZED REPRESENTATIVES	[Ex -L]
EX-P	DEVELOPER COMMITMENTS AND ATCS	[Ex -N]

3.1.2 Selected Significant Differences

An analysis of significant differences between CDA and traditional design-bid-build contract provisions follows:

Order of Precedence between Contract Elements

- For traditional contracting, TxDOT Standard Specifications outline an order of precedence between some contractual documents. Because CDA contracting included under an umbrella many contracts that traditionally were managed separately, the increased complexity of the contractual environment makes the precedence issue more critical in case of disagreement. As a consequence, both CDA contracts defined this precedence in the first section of the contract and included in the ranking other documents such as change order and contract amendments.

Role of Program Manager

- The complexity of D-B project management and shortage of staff necessitated that TxDOT utilize an engineering consultant to help in managing the CDA process. This firm, identified with the term "Program Manager," has a prominent role in project management and on contract interpretation issues. Therefore, both existing CDA contracts defined the role of Program Manager (in these cases HDR, Inc.). While the SH130 contract introduces this entity in a clause regarding TxDOT's role, the SH45 SE contract inserted a specific clause on its role (3.4 Role of Program Manager) that does not place limits on its authority.

Payment

- Both CDA contracts have significant contract amounts ($1.3 billion and $150 million) that make budgeting and bond release issues (for SH130) critical for the project success. In their proposals, proposers provided the payment curve amounts that were used to calculate the present value of the draw schedule between the proposers when determining the best value proposer. Consequently, because the payment curve was critical for selecting the Developer, a contract provision on maximum payment curve was adopted in order to tie the Developer to his proposal. A consequent advantage from having such a clause is to make predictable and controllable the payment over the project's execution life.

ROW

- Acquisition of Final ROW: Different from traditional projects, ROW acquisition services are the responsibility of the Developer and are included in the CDA contract. Both CDA contracts adopted similar language to manage this issue: the Agreement referenced the

corresponding section of the Technical Provisions, as well as external references and manual amendments.

- Costs of Acquisition: Compared to the SH130 contract, the SH45 SE contract:
  - is more prescriptive in describing the associated costs allocated to the Developer (surveying, fees and expenses associated with condemnation services),
  - has allocated to TxDOT the real property costs associated with the ROW as shown on the schematic design included with the RFDP documents,
  - has allocated to the Developer any cost associated with acquiring properties for drainage easements except in case of TxDOT-Directed Change,
  - does not allow an increase in the price or any time extension for site conditions and delay, inability or cost associated with Developer-Designated ROW; and finally
  - outlines a process to manage ROW activities for parcels in which the Developer holds a real property interest.

These changes reflect the learning curve in managing CDA contracting and validate lessons learned from the SH130 project team (presented in the next section). Traditional projects do not need this provision because TxDOT manages the ROW process.

- Limiting Acquisition of Additional Properties: In traditional contracting, where ROW services are self performed by TxDOT, a tradeoff between cost of acquisition and future construction cost is pursued in the interest of the state. CDA contracts allocated the ROW acquisition cost to TxDOT but the cost of construction and ROW services to the Developer. Because ROW services are Developer performed, there is the risk that the Developer will acquire more ROW than anticipated or need to save on construction costs. In order to prevent this, CDA contracts set a ROW corridor. TxDOT is responsible for acquiring land within this corridor; however, the Developer is free to acquire additional property if he was willing to pay for it. On this issue, the SH45 SE contract specifically mentions the obligation for the Developer to restrict additional costs related with drainage easements and Mitigation Sites.
- Representations by Developer: In terms of managing the Developer's role, the SH45 SE is very innovative. In fact, the Developer's designated ROW Project Manager is entitled to undertake the ROW acquisition services as a TxDOT agent, meaning that he can make an offer on behalf of TxDOT. Alternatively, the SH130 contract has specifically forbidden members of the Developer Group from representing themselves as TxDOT agents.
- Right of Early Entry: A significant innovation is the inclusion of a clause that allows the Developer to acquire a "right of early entry" in properties for which access has not yet been acquired. Both CDA contracts approach this issue similarly. Interviews with project representatives highlighted this innovative clause as critical for speeding up the project execution process and for triggering an early commencement of construction activities.

Environmental Compliance

- Another innovation of CDA contracting is that it assigns most environmental risks to the Developer including them in the lump sum price.
- This innovation requires clearly defined roles and responsibilities of the contract parties in terms of permit approvals. Both CDA contracts include two contract provisions that assign environmental responsibilities to the two parties.

- TxDOT responsibilities: the two CDA Contracts address this issue in different ways. On the SH45 SE project, TxDOT retained more of the risk rather than having the Developer price it. For instance, the SH45 SE allocates the costs and performance of all mitigation requirements contained in the USACE Nationwide Permit to TxDOT.
- Developer responsibilities: CDA contracts assign to the Developer most of the responsibility for obtaining new environmental approvals. The SH45 SE contract explicitly includes Developer responsibility for the task of obtaining new environmental approvals related to drainage easements and ROW outside the Schematic ROW.

Performance and Payment Security

- The SH45 SE contract follows the TxDOT manual for traditional contract administration by requiring performance bonds covering the full value of construction work. The SH130 contract used a different and more complex approach in order to alleviate issues with bonding capacity: two different sets of bonds are issued, the first relating design, ROW, and other services performed under NTP1 (notice to proceed no. 1) for an amount of $50 million, and the second covering the construction phase for an amount of $350 million. This graduated approach was needed in order to allow the bond sale and closing before the release of NTP2. Moreover, the SH130 contract required a proposal bond to be in place from the proposal date until performance and payment bonds were received. The SH45 SE contract did not require this bond, adopting a full NTP approach as opposed to the graduated approach of SH130.

Change Orders

- Definition of Change Order: In traditional projects, TxDOT takes most of the risk for unknowns, and change orders are tied to a range for the contract quantity. Additionally, the definition of change orders heavily rely on the concepts of "significant change" and "major item." On the other hand, in CDA projects, TxDOT shares risks with the Developer; therefore, change orders are defined as modifications to the fixed price or to schedule milestones (i.e., completion deadline and acceptance deadline). Another fundamental difference is that CDA contracts defined a monetary threshold below which the Developer handles the cost of the change (i.e., $10,000 for SH130 and $5,000 for SH45 SE).
- Force Majeure Events: These events are denominated "Acts of God" in the TxDOT Standard Specifications (7.14) and include earthquakes, tornado, hurricane, tidal wave, and other cataclysmic phenomena of nature. CDA contracts also included under this denomination other uncertainties specific to the project. For instance, the SH45 SE contract considers any changes in requirements for USACE permits a force majeure event, whereas the SH130 contract includes in the definition new utilities and Karst features requiring investigations.
- Differing Site Conditions: While the TxDOT manual for traditional contract administration (CCAM) entrusts the TxDOT engineer with most of the responsibilities relating to the solution of this issue, CDA contracts allocate most responsibilities to the Developer for working around the impacted locations, and the Developer is responsible for determining the appropriate action to be undertaken. The two D-B contracts adopted

the same structure for allocating risk between the Department and the Developer. They charge the whole risk in terms of time to the Developer ("*No time extension shall be available with respect to Differing Site Conditions, and no delay damages shall be recovered*"). However, they allow the Developer to share additional costs from Differing Site Conditions with the Department. Both introduce a threshold of $5,000,000 (SH130) and $1,000,000 (SH45 SE) in additional costs, after which TxDOT becomes responsible. The latter contract (SH45SE) introduces two different procedures to track costs. Moreover, it introduces the need for an official statement signed by a qualified professional.

Utility Adjustments Services

- Notable differences between CDA and traditional contracting are:
  - Utility relocation in developer scope
  - Risk of uncharted utilities borne by developer within a maximum threshold: Developer non-compensable deductible and deductible cumulative cap for unidentified utilities. The Developer takes the risk of the first $50,000 for each unidentified utility for "no more than $1,000,000 of such $50,000 deductibles for Utility Adjustment Work authorized by issuance of NTP2." (TxDOT 2001, p.90).
  - No time extension for inaccurate utility information. SH45 SE CDA slightly changed the definition of identified utilities. This change reflects the learning curve in managing CDA contracting and validates lessons learned from the SH130 project team (presented in the next section).
  - In SH 45 SE, because TxDOT was unable to gain access to the HEEP ranch property to locate a private water line, the contract assumed some quantities and requested bid unit prices on relocation costs for this private water line.
  - Both CDA contracts defined a new utility as a utility installed after the proposal date. The SH130 contract allocated schedule risk associated with new utilities to the Developer, whereas in the SH 45 SE contract, cost and schedule risk of new utility relocation were transferred both to TxDOT.

4. Product No. 3: Organization Structure & Communication

One current focus of ongoing research is to gather information about the CDA project looking closely at the *organizational structures* and *communication flows*. This information will be used to document and analyze SH 130 organizational and communication structures, and to track associated lessons learned. A draft of the SH 130 organizational and communication structure will be included in Product No. 3: (Future Research Report 0-4661-P3). Collected lessons learned will also be included in Product No. 6: Lessons Learned Database (Future Research Report 0-4661-P6).

4.1 Topics Being Investigated

4.1.1 Interview Guide

To pursue this research, researchers developed a semistructured interview guide with questions grouped in three sections as follows:

- First, focus on significant differences in how key organizations have structured their organizations for this CDA contract in contrast to traditional D-B-B projects.
- Second, examine the unique relationship between owner (TxDOT) and program manager (HDR).
- Finally, investigate unique or innovative communication flows between different elements of the project team.

A complete version of the interview guide is included in Appendix A.

4.1.2 Program of Interviews

Four interviews with project representatives have been conducted to date. Researchers plan to interview key personnel within the three involved parties (TxDOT, HDR-Program Manager, and LSI-Developer). A list of personnel contacted to date follows in Table 4.1.

Table 4.1 Product No. 3 –Interviews Status

	Organization	Job Title	Name	Contacted	Scheduled	Completed
	HDR	SH130 Design Manager	Rick Klatt			
	HDR	SH130 Construction Manager	Ken Smith			
	HDR	SH130 ROW Manager	Teri Morgan			
	HDR	SH130 Environmental Manager	Doug Hagemeier			
	HDR	SH130 Utility Specialist	Scott Colter			
	HDR	SH130 Information System Manager	Manuel Zarate			
	LSI	Program Director	Douglas Fuller			
	LSI	Deputy Director	Bob Stevens			
	LSI	Construction Director	John Rempe			
0	LSI	Design Director	Sharon Gookin			
1	LSI	Project Control Director	Michael Lipinski			
2	LSI	Environmental Manager	Tom Van Zandt			
3	TxDOT	ROW Turnpike Manager	Don Toner			
4	TxDOT	Turnpike Environmental Manager	John Geiselbrecht			
5	TxDOT	Utility Turnpike Manager	John Breed			
6	TxDOT	Construction Turnpike Director	Robert Crowson			
7	TxDOT	Design Turnpike Manager	Evertson, J. Terron			

4.1.3 Path Forward

During the next several months, researchers plan to complete this round of interviews and to integrate findings in Product No. 3 (Future Research Report 0-4661-P3).

5. Summary

During the first year of investigations, Research Project 0-4661 delivered two research products (P1 and P2) with another three products (P3, P5, and P7) currently in development.

The completed, published products are:

- Product Number 1: CDA Procurement Process Model
- Product Number 2: Essential Elements of CDA Master Contract

Efforts are underway for three additional products:

- Product Number 3: Documentation of the SH 130 Organizational Structure (First Version)
- Product Number 5: Benchmarking Methodology for Comparing CDA contracts to conventional projects
- Product Number 7: Annual SH130 innovation workshop.

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Texas Department of Transportation (TxDOT) (2001). Request for proposals to construct, maintain and repair the SH130 turnpike through an exclusive development agreement: Exclusive Development Agreement. Austin, TX: Texas Department of Transportation.

Appendix A:
Interview Guide Used for Product 3

1. <u>Significant Organizational Differences</u>

1.1. **TxDOT-Owner**

1.1.1. What are some very *significant differences* from traditional D-B-B projects in how the TxDOT *is organized* for this CDA contract? (i.e., compare with other traditional turnpike projects)

1.1.2. How/why has each *difference* been significant?

1.1.3. Regarding *TxDOT's organizational structure*, what specifically would you do differently on the next CDA?

a. Any area where *overstaffing* was a problem?
b. Any area where *understaffing* was a problem?
c. Any critical role/responsibility *not well defined* or understood?

1.2. **HDR-Program Manager**

1.2.1. What are some very *significant differences* from traditional D-B-B projects in how the Program Manager *is organized* for this CDA contract? (i.e., compare with other traditional turnpike projects)

1.2.2. How/why has each *difference* been significant?

1.2.3. Regarding *HDR's organizational structure*, what specifically would you do differently on the next CDA?

a. Any area where *overstaffing* was a problem?
b. Any area where *understaffing* was a problem?
c. Any critical role/responsibility *not well defined* or understood?

1.3. **LSI-Developer**

1.3.1. What are some very *significant differences* from traditional D-B-B projects in how the Developer *is organized* for this CDA contract? (i.e., compare with other traditional turnpike projects)

1.3.2. How/why has each *difference* been significant?

1.3.3. Regarding *LSI's organizational structure*, what specifically would you do differently for the next CDA?

a. Any area where *overstaffing* was a problem?
b. Any area where *understaffing* was a problem?
c. Any critical role/responsibility *not well defined* or understood?

2. <u>Program Manager (HDR) – TxDOT Relationship</u>

2.1.1. Any *lesson learned* thus far in setting up/operating under this relationship?

a. Misallocation of duties?
b. Compatibility of operating procedures/systems?
c. Sufficiency of staff?

2.1.2. What would you do differently on the next CDA?

3. <u>Communication Flows</u>

3.1.1. Where/in what way have project team *communications* been most challenged?

3.1.2. How significant has colocation between TxDOT, HDR, and LSI been in achieving effective *communication*? If possible, please describe some specific examples.

3.1.3. Has any "short-circuiting" of *communications* between TxDOT/HDR and LSI subs been problematic?

3.1.4. Have there been any unique aspects of *communications* notably successful for this CDA?

a. Any notable *communication* successes or lessons learned in the design area?
b. Any notable *communication* successes or lessons learned in the ROW area?
c. Any notable *communication* successes or lessons learned in the utility relocation area?
d. Any notable *communication* successes or lessons learned in other project processes?