



Office of Major Project Development (OMPD) Environmental Best Practices for Alternative Delivery

Compilation from Existing Research and References

(Internal Document)

April 2016



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Best Practices for Alternative Delivery

1.0 Overview and Purpose of the Document

This document summarizes the Best Practices identified from a review of 11 documents and interviews with 3 representatives from 2 different states related to environmental practices used in alternative delivery and major projects. The purpose for the Best Practices review, and those practices chosen for documentation in this report, is twofold:

1. The best practice improves the overall stewardship of the resource, including enhanced protection of the environment or improved resource agency relationships.
2. The best practice improves the ability of the overall program to deliver projects by expediting environmental approvals or creating opportunities for innovation, cost cutting, or streamlining schedules.

The resource documents reviewed for this report are listed in Table 1.

Agency	Document	Date	Abbreviation in this Report
Colorado Department of Transportation (CDOT) Division of Transportation Development	Design Build Environmental Quality Assurance Research Study, Report No. Colorado Department of Transportation-DTD-R-2005-11	December 2005	DTD Report
CDOT	Design Build Manual	April 15, 2006, revised June 11, 2014	CDOT D-B Manual
Arizona Department of Transportation (ADOT), Office of P3 Initiatives	ADOT P3 Program Guidelines	August 30, 2011	Arizona DOT
Federal Highway Administration (FHWA)	Every Day Counts Initiative (Shortening Project Delivery Toolkit) http://www.fhwa.dot.gov/innovation/everydaycounts/	Page last updated March 23, 2016	FHWA Every Day Counts
Pennsylvania Department of Transportation	Providing for Public Private Transportation Partnerships - Implementation Manual & Guidelines	Approved for use January 9, 2013	Pennsylvania DOT Implementation Manual
Texas Department of Transportation, Texas Facilities Commission	Public-Private Partnership Guidelines	October 1, 2012	TxDOT P3 Guidelines
Transportation Research Board, Strategic Highway Research Program (SHRP 2 C12)	Report on the Effect of Public-Private Partnerships and Non-Traditional Procurement Processes on Highway Planning, Environmental Review, and Collaborative	2015	TRB SHRP 2 C12 Report



Table 1. Source Documents

Agency	Document	Date	Abbreviation in this Report
	Decision Making		
CDOT, Innovative Contracting Advisory Committee (ICAC)	Project Delivery Selection Approach	August 28, 2012	ICAC Project Delivery Approach
Virginia Department of Transportation (VDOT), Alternative Project Delivery Office, VDOT, Virginia Office of P3s	Design-Build Procurement Manual	October 2011	VDOT D-B Procurement Manual
	Manual and Guidelines for the Public-Private Transportation Act of 1995 (As Amended)	November 2014	VDOT PPTA Implementation Manual and Guidelines
CDOT, Office of Major Project Development (OMPD)	Project Diagnostic Reviews I-25/Cimarron Interchange and SH 82 Grand Avenue Bridge	November 3, 2014	OMPD Project Diagnostics
U.S. Department of Transportation, Build America Transportation Investment Center	Successful Practices for P3s	March 2016	US DOT
FHWA, Colorado Division and CDOT	Environmental Consultant Contracts	May 2015	FHWA Environmental Consultant Contracts

The representatives interviewed for this report are listed in Table 2.

Table 2. DOT Representatives Interviewed

Agency Represented	Person(s) Interviewed	Date	Topics Discussed
Texas DOT Strategic Projects Division	Dieter Billek, Procurement Director, Strategic Contract Management Division; Kristi Flagg, Pre-Procurement Manager, Strategic Contract Management Division	March 8 and March 11, 2016	Requirements of their Comprehensive Environmental Protection Program; how to allow for flexibility in design and mitigation; preparing procurement documents.
Virginia DOT Design/Build Program	Elizabeth Jordan, Environmental Program Planner	March 8, 2016	Suggestions for best practices related to involvement of environmental specialist, coordination with resource agencies, preparing procurement documents



2.0 Best Practices for Consideration

This section is a summary of recommended best practices and the benefit to CDOT and OMPD. Additional information is provided on specific applications of the Best Practices to CDOT relative to CDOT's standard practices. Some of the best practices are from the literature review and some are from the interviews with specialists in other states. These are suggested best practices that CDOT/OMPD/HPTA could consider to improve its National Environmental Protection Agency (NEPA) and permitting process related to the delivery of major projects, including Private Public Partnerships (P3) projects and other alternative delivery methods. Some of these best practices are currently being examined by the CDOT ICAC Environmental Subcommittee. Those best practices are noted in the following sections organized by project life-cycle phase. Additional detailed information on each of these best practices is available in Table 3 and in the appendix. Table 4 includes a summary of the DOT representatives interviewed.

2.1. Best Practices #1: Planning and Budgeting

- **Define the possible use of a P3 approach for specific projects in planning.**

Benefit: This best practice could be used for Planning and Environmental Linkages (PEL) Studies and to be placed in Statewide Planning Documents and Regional Transportation Plans. If this is made clear from the very beginning as a project is being considered, the public would be aware and involved in the decision-making process, and understand the reasons for considering P3 as a delivery method. In addition, a benefit to this practice is that it would help CDOT understand the needs of the process earlier in project development, saving time and money in developing accurate schedules and budgets from the beginning. .

- **Use the statewide planning process to prioritize possible P3 and other major projects.**

Benefit: Sufficient information could be provided during the statewide planning process to allow for this to be done. This directs resources so they are most efficiently allocated. More efficient allocation of resources allows CDOT/ OMPD to more accurately update financial data and will allow program managers and agencies to better make “course corrections” to improve planning and effectiveness, and avoid inefficient use of resources.

- **Make sure budgets for projects are sufficient for the project definition and include environmental contingencies.**

Benefit: When unanticipated circumstances occur, for example encountering undocumented hazardous materials during construction, the contingency funds can be used to mitigate these conditions, scheduling delays and acceleration issues, lack of bidding competition and/or subcontractor defaults.

2.2. Best Practices #2: Project Development

- **Include funding/financial challenges in the project purpose and need for NEPA documents.**

Benefit: This has been done successfully on the C-470: Kipling Parkway to I-25 Revised Environmental Assessment (EA) which referenced “Financial Feasibility” as a part of the project purpose and need. This best practice allows these factors to be included in the alternatives screening process.

- **Make sure mitigation measures in NEPA documents are easily understood by Contractors.**



Benefit: This can be accomplished by writing environmental commitments in the NEPA document using more contractor-like language, or by translating the requirements from the NEPA document into the Contractor RFP. This best practice would increase the Contractor's ability to properly implement and complete mitigation requirements during construction. The CDOT ICAC Environmental Subcommittee has acknowledged this as a challenge for the environmental process in Design-Build delivery and may provide guidance on this issue.

- **Use adaptive mitigation to allow for flexibility.**

This best practice in NEPA document writing consists of clearly defining all mitigation measures to include what specific activity triggers the mitigation, performance standards for the mitigation, and the location of that activity. This then provides flexibility for a Contractor to develop alternative construction techniques to minimize impacts or avoid the activity causing the need for the mitigation.

Benefit: This technique was used successfully on the Twin Tunnels EA and set the stage for the Construction Management/General Contractor (CM/GC) delivery process to save time and money during the implementation phase. It clearly ties the mitigation to a specific activity and location which provides more flexibility during subsequent phases for the designer or Contractor to avoid or minimize the activity that causes the impact and thus reduce or omit the need for the mitigation.

- **If possible, look for opportunities to allow for flexibility in the alternatives definition process during NEPA.**

This best practice consists of looking for opportunities to be less restrictive (in the definition of the proposed action) during the NEPA process, to allow for a private partner to bring innovative ideas during the procurement and construction phase without the need to complete a NEPA Reevaluation process. Examples could be allowing for design flexibility within a broad corridor or flexibility for a specific intersection or interchange type. This could be done by preparing design plans that are less than 30 percent or selecting a CM/GC or entering into a Pre-Development Agreement while the NEPA process is still ongoing.

This kind of flexibility is built into the CDOT design/build or CM/GC process currently, however the added benefit of this best practice is the flexibility to change the design from that documented in the NEPA document without requiring a Reevaluation.

Benefit: The primary benefits of these approaches are cost and schedule savings that could be realized in the construction process. This approach saved several millions in construction cost and disruption to the traveling public on the Twin Tunnels CM/GC process, because the CM/GC developed an innovative approach to hauling construction materials and equipment.

- **During the data collection phase, consider what information will be important to subsequent private entities proposing on a P3, CM/GC or D/B project.**

As an example, encountering unknown recognized hazardous materials can cost contractors in both time and money creating costly schedule delays. Collecting detailed information on recognizable hazardous materials is not typically a crucial item during the NEPA process, but can be critical in reducing risk to subsequent proposers. If NEPA budgets allow, collect this type of detailed environmental information in the NEPA process.

Benefit: This best practice provides critical information to private parties during the procurement phase, which will reduce risk and improve reliability of subsequent proposals.



- **Make sure study areas are broad enough during the NEPA phase to encompass alternative design concepts that may arise during the procurement/construction phase.**

If a study area is too narrow during NEPA, time is wasted during subsequent phases to go out and collect additional environmental resource data. It is much more cost efficient to collect data from a larger area upfront in the NEPA process.

Benefit: The cost and schedule savings are the primary benefit of this best practice.

- **Conduct risk assessment workshops focused on environmental factors.**

Carefully consider who should most appropriately bear the responsibility for resolving the risk. Consider if it makes sense for CDOT or other agencies to take early actions to minimize risk, such as collecting additional environmental data.

Benefit: This best practice results in proposals which have less risk built into them, reducing overall cost to CDOT.

2.3. Best Practices #3 Procurement Phase

- **Require that proposers provide environmental compliance training for their staff.**

Environmental compliance requires adherence to the environmental commitments made by CDOT during NEPA relative to all phases of project delivery. It includes: complying with the provisions of various federal, state and local rules and regulations as well as the specific stipulations in permits and approvals issued under these authorities.

Benefit: The benefit of this best practice is that there are fewer violations of environmental laws. Any time there is a violation, the public and agency perception of how CDOT is meeting their commitment to the NEPA process and environmental stewardship is damaged. Another benefit is that if training is provided about what to do if there are unanticipated resources uncovered during construction (such as fossils or buried historic resources), there is less delay during the construction process.

- **Require Contractor schedules that clearly lay out timeframes for any reevaluations or securing permits** that are in enough detail so the evaluators can determine if the proposer understands the requirements.

Benefit: The benefit of this best practice is that sufficient time is budgeted to adequately reevaluate changed impacts and mitigation from a design or construction change. This puts less pressure on CDOT reviewers and on FHWA.

- **Use environmental performance evaluation criteria in scoring Contractor proposals.**

Benefit: This should include qualifications of environmental personnel, proposed schedules, demonstrated sensitivity to environmental issues, compliance with environmental requirements, and past performance relative to resolution of environmental issues. As the project owners, CDOT is ultimately responsible for environmental compliance. Therefore, it is critical that the contractor's environmental staff have the knowledge to recognize environmental issues in the field and the confidence to report non-compliant events.

- **Require dedicated and qualified environmental managers as Key Project Personnel for the duration of the contract.**



Benefit: Developing a comprehensive list of qualifications criteria for every potential environmental resource, clearly defining responsibilities, and requiring specific qualifications for proposer’s staffing to help to ensure that mitigation and compliance requirements are met. The managers will be responsible for adhering to internal policies, procedures and standards as well as interagency agreements on a variety of environmental matters, limiting liability for CDOT.

- **Include a template for the Environmental Compliance Manual.**

This best practice is being implemented through the rewrite of CDOT’s Design-Build Manual in coordination with the ICAC Environmental Subcommittee.

Benefit: The template will be available across CDOT so each project will have a starting point of reference, which will result in cost savings and consistency among all projects.

2.4. Best Practices #4: Construction Phase

- **Require CDOT to lead all environmental resource agency communications.**

Benefit: A central point of communication will reduce any miscommunications that may occur with multiple parties holding discussions with resource agencies.

- **Require qualified environmental personnel to be involved in regular coordination.**

Current practice is that qualified environmental personnel are not involved in all regular project coordination, so engineering teams frequently do not have the environmental perspective as they revise project design or make changes during the construction process.

Benefit: Having environmental personnel included in all coordination efforts will ensure that required environmental mitigation concerns are addressed before design revisions occur. This will reduce duplication of effort for the engineering team and will provide an overall cost benefit.

- **Perform comprehensive project close-out procedures,** including environmental operations and maintenance (O&M) checklists.

Benefit: A comprehensive project closeout process will assess the project, ensure completion, and identify lessons learned and best practices to be applied to future projects. Check-lists will provide a written record that all requirements were met.



Table 3 provides additional detail on Best Practices identified through the literature review.

Table 3. Summaries of Best Practices from Literature Review				
	Best Practice	CDOT Current Practice	Additional Detail on Considerations	Source
Planning	Discuss Potential of Tolling and P3s during the Planning Phase with Metropolitan Planning Organizations (MPO), Transportation Planning Regions (TPRS), CDOT Region Staff, Various Groups Within CDOT, and FHWA as Early as Possible.	Not standard practice. CDOT has a policy (Policy Directive 1603.0) that directs regions to consider tolling/managed lanes for new capacity during system or corridor level studies. This PD does not directly extend to working with MPOs or TPRS	If Alternative Delivery considerations are included in the development of Regional Transportation Plans, local governments and the public are aware of this possibility from the beginning, which minimizes controversy.	TRB SHRP 2 C12 Report
Planning	Prioritize Alternative Delivery Projects in the Statewide Program Planning Process that can Quickly be Moved Through Project Delivery Process.	CDOT DTD currently prioritizes through various programs, including the STIP and Development Program. In the future, and in coordination with DTD, OMPD will have the Major Projects Pipeline to aid in this analysis.	For example, those that have approved or pending state and federal environmental clearances, secured significant right of way, have previously allocated significant state or federal funding, or exhibit other characteristics that could reasonably reduce the amount of time to implement. Develop a list of potential projects and their status, what is needed to move to next step, to take into consideration during program planning at the state level.	VDOT PPTA Implementation Manual and Guidelines
Budget	Have each Project Allocate An Environmental Reserve Fund As Appropriate.	Not standard practice	The project budget should allow for unknown and unexpected environmental contingencies. A fund should be created for each project as a means of ensuring that adequate funds are available for such unknowns (e.g., an emergency hazardous waste incident). These	DTD Report; CDOT OMPD Project Diagnostic Reviews



Table 3. Summaries of Best Practices from Literature Review

	Best Practice	CDOT Current Practice	Additional Detail on Considerations	Source
			funds would be included in the overall project budget, and would be over and above the contract price with the P3 contractor.	
Budget	Make Sure the Project Definition is Aligned with Revenue Potential and Available Funding.	Not standard practice.	HPTE and OMPD should be involved early in project prioritization discussions so that financial viability is part of the prioritization and project selection discussion.	TRB SHRP 2 C12 Report
Project Development	Write Mitigation in Language the Contractor can Understand.	Not standard practice.	ICAC Environmental Subcommittee has identified this as an environmental challenge in design-build, and may provide guidance on this issue.	ICAC Environmental Subcommittee findings (communicated by Jon Chesser in February 25, 2016, meeting)
Project Development	Incorporate Tolling and other Alternative Funding into NEPA Purpose and Need Statements.	Has been used occasionally by CDOT and is hard to accomplish without predetermining the NEPA outcomes.	23 CFR Part 450 specifically allows the need for special funding sources to be included in a project's purpose and need statement. This allows funding to be used to limit the alternatives studied in a NEPA process.	TRB SHRP 2 C12 Report
Project Development	Allow for Mitigation Flexibility (also called adaptive mitigation).	Not standard practice, but was used effectively on the Twin Tunnels project.	Define the level of specificity needed for the alternative descriptions and the mitigation commitments so that there is room for flexibility during design and construction to develop innovation and/or cost-saving techniques. The adaptive mitigation approach, which CDOT implemented on the Twin Tunnels project, is a good example of mitigation flexibility. The adaptive mitigation approach clearly	OMPD Project Diagnostics



Table 3. Summaries of Best Practices from Literature Review

	Best Practice	CDOT Current Practice	Additional Detail on Considerations	Source
			states when mitigation is required, so a Contractor could alter the design to avoid the impact that required the mitigation.	
Project Development	Carefully Consider Appropriate Level of Design During NEPA.	Not standard practice	<p>During the NEPA process, design is usually advanced to approximately 30%, except in areas of sensitive environmental resources (wetlands, endangered species habitat, Section 4(f) properties). In those areas, in order to meet the requirements of other federal laws, design and mitigation is typically advanced further. This greater level of design could be a disincentive because it squelches creativity and may negate the advantage to the public agency of using a P3 contractor.</p> <p>Possible ways to approach this issue are to work out in advance agreements with regulatory agencies to minimize their needs to advance design or to consider entering into a pre-development agreement with a private contractor while the NEPA process is underway. Use of a CM/GC Contractor can serve this same purpose.</p>	TRB SHRP 2 C12 Report ; OMPD Project Diagnostics
Project Development	Follow Requirements for Timing of Final Design.	CDOT is currently following these requirements. However, CDOT has worked with FHWA to get approval to advance design at risk	Final design under a design-build contract shall not commence before compliance with Section 102 of the National Environmental Policy Act of 1969 (42 U.S.C. 4332). Final design	CDOT D-B Manual



Table 3. Summaries of Best Practices from Literature Review

	Best Practice	CDOT Current Practice	Additional Detail on Considerations	Source
		before the NEPA decision document is signed.	for other types of alternative delivery can proceed in certain circumstances (at risk) after FHWA grants permission, as allowable under the FHWA Every Day Counts Initiative.	
Project Development	Develop Data Collection Plans Considering What Private Proposers Need to Better Understand Risk.	Not standard practice.	During planning phase, develop a list of potential high risk factors. Make sure these are addressed in NEPA documentation. For example, geotechnical data is one risk factor that is frequently not a major focus during the NEPA phase but it may be a major risk factor for a private sector partner. There are likely other factors which may need to be considered.	TRB SHRP 2 C12 Report
Project Development	Consider Flexible Project Definition Possibilities during the NEPA Process.	Not a standard practice.	If possible, avoid precise details and apply conceptual possibilities for alternative delivery project features and options. The purpose of this is to encourage Contractor flexibility during the subsequent design/construction processes. Disclose possibilities during scoping and in the Notice of Intent. Include financial needs that support alternative delivery (P3).	TRB SHRP 2 C12 Report, USDOT
Procurement	Assign Dedicated and Qualified Environmental Managers for the Duration; Require these individuals to be Identified as Key Project Personnel in the Procurement Documents.	Not standard practice. CDOT requires a qualified Environmental Manager, but in the past has not mandated that they be key personnel.	Have the agency and the contractor assign qualified Environmental Managers to be engaged throughout the duration of the project. Define minimum qualifications for Environmental Managers. Develop a comprehensive list of qualifications	DTD Report



Table 3. Summaries of Best Practices from Literature Review

	Best Practice	CDOT Current Practice	Additional Detail on Considerations	Source
			criteria for every potential environmental resource that could be encountered on a project. Make sure responsibilities are clearly defined, such as having the Environmental Managers review and approve environmental issues in the preliminary design and ensure that the cost estimates for all phases of the work are consistent with projects requirements and the project budget.	
Procurement	Require the Work Breakdown Structure (WBS) to Detail Environmental Compliance Activities.	There are some activities in the WBS currently, but the costs and the labor are rolled into one dollar amount. If a full-time Environmental Manager (EM) is called out in the RFP, it is currently difficult to hold contractor accountable for having the full-time EM on site. Also, the activities lists could be more detailed or comprehensive.	CDOT's Environmental Manager and Project Manager work together to develop the WBS for environmental compliance to include in the RFP. A review of the WBS in the RFP would make sure the level of detail is adequate to track Contractor activities and staffing level and hold Contractor accountable for completing environmental compliance.	CDOT Design-Build Manual
Procurement	Review Contractor's Past Performance in Complying with Environmental Aspects of the Project.	Not standard practice	Review the contractor's past environmental compliance performance in the Pre-qualification process to disqualify those that are not acceptable. This is done for other aspects of the project, but not for environmental.	DTD Report



Table 3. Summaries of Best Practices from Literature Review

	Best Practice	CDOT Current Practice	Additional Detail on Considerations	Source
Procurement	Define Contractor O&M Responsibilities. For Environmental Items in the Procurement Documents.	Not standard practice	Define contractor’s O&M responsibilities related to environmental compliance in the contract. This may include activities such as wetland monitoring or noxious weeds control.	DTD Report
Procurement	Require Contractors/Proposers to Submit Environmental Schedules and Approaches.	Not standard practice	RFPs should include requests for a conceptual environmental schedule, technical approaches, and environmental approval timing. Schedules should include time for Environmental Reevaluations and securing permits. The RFP should request information on the proposer’s ability to meet project environmental goals, perform the required environmental work, and succeed in terms of meeting environmental goals as part of past performance.	CDOT D-B Manual; OMPD Project Diagnostics
Procurement	Require the Project Development Plan in the Contractor’s Proposal to Include Environmental Factors.	Not standard practice	The Project Development Plan should include an overview of the qualifying project, including a list of factors that may impact the qualifying project and the existing neighborhood or landowners, including potential political, economic, transportation, and environmental factors.	PDOT Implementation Manual
Procurement	Use RFP Environmental Evaluation Criteria.	Not standard practice	The evaluation criteria should include the Contractor’s project understanding, management approach and organizational structure; demonstration of	VDOT D-B Procurement Manual



Table 3. Summaries of Best Practices from Literature Review

	Best Practice	CDOT Current Practice	Additional Detail on Considerations	Source
			applicable experience, manpower and equipment resources; experience in obtaining environmental permits, obtaining right-of-way and successfully completing other Design-Build or P3 projects.	
Implementation	Require On-Site Environmental Manager.	Not standard practice	The Environmental Manager should be required to be on the construction site at all times, because this staff person will interpret plans and environmental specifications and self-regulate the construction project for environmental compliance.	DTD Report; OMPD Project Diagnostics reports
Implementation	Perform Comprehensive Construction Process Closeout.	Not standard practice	An Environmental Management System (EMS) could serve as the foundation for the final environmental project review and internal agency approval. The EMS would have a list of environmental commitments, permits, and mitigation completed, and the date that each of the items was finished, checked-off by CDOT Environmental Manager and approved by the PM. Maintenance staff should be involved in the project close-out inspection to ensure that they know all the actions that must be taken upon assumption of operation and maintenance of the facility.	DTD Report



Table 3. Summaries of Best Practices from Literature Review

	Best Practice	CDOT Current Practice	Additional Detail on Considerations	Source
Implementation	Develop and Use Documented and Standardized Approaches.	Not standard practice	Environmental compliance is most effectively achieved and produces maximum schedule and budget benefits when environmental procedures, policies, and processes are well documented, defined, and standardized. The approach should apply checklists and electronic tools such as a website, a database, and/or a GIS application for environmental commitment tracking. A training program for Contractor personnel should be developed to ensure standardization. Efficiencies to be gained through documenting, tracking and communicating environmental commitment processes and procedures throughout the organization are essential to producing cost-effective projects.	DTD Report
Implementation	Ensure Contractors and Design Staff are Trained in Environmental Compliance.	Not standard practice	Have contractor provide environmental training to design staff, on-site construction and maintenance personnel. Have the contractor demonstrate environmental knowledge and expertise in their response to the Request for Qualification (RFQ).	DTD Report
O&M	Develop Checklists.	Not standard practice	Develop an Environmental O&M checklist. Develop a project close-out checklist (punch list).	DTD Report



Table 3. Summaries of Best Practices from Literature Review

	Best Practice	CDOT Current Practice	Additional Detail on Considerations	Source
Policy	Develop Regional or State Policies that Tolling be Evaluated as an Alternative.	CDOT PD 1603.0 for managing new capacity.	This is a state-wide policy directive.	TRB SHRP 2 C12 Report
Process	Include Independent Peer Review of Environmental Issues at Decision Points in Project Delivery Process.	Not standard practice.	To evaluate and/or define environmental scopes of work, process strategies, methods and/or findings.	OMPD Project Diagnostics; FHWA Environmental Consultant Contracts
Risk	Develop Environmental Risk Allocation Guidelines.	Not standard practice.	Develop risk allocation guidelines between CDOT and the contractor for the project. Involve environmental specialist in the risk identification process.	DTD Report
Risk	Conduct an Environmental Risk Assessment Prior to Procurement.	Not a standard practice	To prepare for procurement, conduct a risk assessment of key project elements including environmental, scope and design elements, schedule, costs and revenue estimates. For environmental risks, consider ways to minimize risk. One approach could be to do some environmental work prior to procurement. Clearly define roles and responsibilities for who holds the risk.	Pennsylvania DOT Implementation Manual



Table 4 provides additional detail on Best Practices identified through agency interviews.

Note that the Virginia DOT and the Texas DOT have two different approaches – Virginia is more prescriptive and Texas tries to allow their Contractors more leeway to encourage innovation. The Virginia DOT approach was developed in response to a situation where a Contractor developed a project that ultimately was unable to secure a Section 404 permit, so a Supplemental NEPA process was required. Even though the Virginia approach is more prescriptive, the Contractors still had enough leeway to develop innovations.

Table 4. DOT Interview Summaries		
Best Practice	Virginia Department of Transportation	Texas Department of Transportation
Clearly define roles and responsibilities in procurement documents.	VDOT clearly identifies who has the responsibility to resolve/perform all tasks in the RFP. This has not resulted in a lack of innovations.	<p>TXDOT requires contractors to develop, operate, and maintain a Comprehensive Environmental Protective Program (CEPP) that clearly defines roles and responsibilities for:</p> <ul style="list-style-type: none"> • Environmental Management System • Environmental Compliance and Mitigation Plan (ECMP) • Environmental Protection Training Program • Hazardous Materials Management Plan • Communication Plan • Construction Monitoring Plan • Environmental Team Resume
Identify and develop plans to address high risk items (prior to issuing the RFP) to minimize schedule and cost issues.	VDOT brainstorms high risk items on each project and either addresses these in house or clearly defines responsibilities for the Contractor to do so. Examples of high risk items typically performed by VDOT include performing T/E species surveys, mitigating high risk hazardous materials issues, and conducting Section 7 consultation.	TXDOT clearly identifies roles and responsibilities for resolving high risk items such as needing to amend the Regional Transportation Plan if the design changes. Most of the tasks for conducting additional environmental review remain the responsibility of the Contractor.
Ensure good communication between Contractor and environmental staff.	VDOT requires a weekly meeting or conference call to discuss ongoing design changes. VDOT also has environmental representation at all meetings during the procurement process and during the construction process.	Weekly or bi-weekly environmental task force meetings are held with the Contractor, TXDOT, and environmental staff.



Table 4. DOT Interview Summaries

Best Practice	Virginia Department of Transportation	Texas Department of Transportation
<p>NEPA Phase Best Practices (adaptive mitigation, using terms for mitigation that the Contractor can easily understand, allowing flexibility for design refinements).</p>	<p>VDOT has experienced problems by allowing flexibility so now follows a prescriptive process; especially in areas where wetlands or Waters of the US are impacted. They also require the Contractor to document additional avoidance and minimization to measures they examined during the process provide to the USACE.</p>	<p>TXDOT prepared one NEPA document that cleared all land from ROW to ROW. This allowed for flexibility in design without doing additional environmental review.</p>
<p>Provide a template for the Environmental Compliance Manual.</p>		<p>TXDOT has a set template for the ECMP called a CEPP. The CEPP includes preparation of Environmental Permits, Issues and Commitments (EPIC) sheets which are then turned over to the Contractor for their action in the following areas:</p> <ul style="list-style-type: none"> • Clean Water Act – Sections 404 and 401 • Clean Water Act – Section 402: Texas Pollutant Discharge Elimination System • State Listed Species and Unregulated Habitat • Endangered Species Act and Fish, Wildlife Coordination Act, and Migratory Bird Treaty Act • Traffic Noise • Hazardous Materials • Water Well Impacts and Requirements • Cultural Resource Studies • Public Involvement • Standard Operating Procedures



Table 4. DOT Interview Summaries

Best Practice	Virginia Department of Transportation	Texas Department of Transportation
Provide environmental compliance training for contractor work.		TXDOT requires the Contractor to provide environmental compliance training to their construction staff. TXDOT monitors to ensure training has occurred.
Agency to agency interaction.	VDOT is in the lead on all communication with FHWA and resource agencies to avoid being penalized on other projects statewide.	



Appendix:

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6. Texas Department of Transportation, Texas Facilities Commission, Public-Private Partnership Guidelines, October 1, 2012.....	A-12
7. Transportation Research Board Strategic Highway Research Program (SHRP 2 C12), Report on the Effect of Public-Private Partnerships and Non-Traditional Procurement Processes on Highway Planning, Environmental Review, and Collaborative Decision Making, prepared by Parsons Brinckerhoff with Nossaman LLP and HS Public Affairs, 2015	A-13
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10. CDOT, Office of Major Project Development, Project Diagnostic Reviews I-25/Cimarron Interchange and SH 82 Grand Avenue Bridge, prepared by HDR, November 3, 2014.....	A-23
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1. **CDOT DTD, *Design Build Environmental Quality Assurance Research Study*, Report No. CDOT-DTD-R-2005-11, December 2005, Prepared by PBS&J.**

Abstract

This report evaluates the unique characteristics of the design-build method as it relates to identifying processes that assure environmental compliance. This report also offers recommendations to address those environmental challenges while managing design-build projects. The details contained in this report are from data and information gathered to address environmental compliance in the design-build approach, but they have implications that can be utilized in conventional processes as well.

This study only investigated one component of the design-build process – compliance with environmental commitments. All interviews, analysis, and recommendations made in this study pertain solely to the narrow subject of compliance with environmental permitting, NEPA mitigation requirements, and other environmental stewardship objectives relative to the design-build delivery system.

The project team expected to find a number of State Departments of Transportation (DOTs) and other agencies with existing environmental guidelines. However, of the twelve agencies that participated in the research study, only three had any process or procedure for documenting, tracking, and communicating environmental compliance requirements.

The project team also anticipated finding a number of software tools to help document, track and communicate environmental requirements throughout the organizations. However, only three have electronic tools. Most of the tools used are Microsoft Excel spreadsheets, and these are used primarily during the National Environmental Policy Act (NEPA) document development stage only.

Relevant Environmental Best Management Practices for Alternative Delivery Mechanisms

A complete summary of CDOT’s recommendations and Best Practices is presented in Chapter 4 of the report. Table 7 provides study’s recommendations. As described in the report, many of the Best Practices apply to traditional delivery and are not unique to alternative delivery. The primary Best Practices and those most applicable to the risks associated with alternative delivery were noted and are summarized as follows.

Program Planning

This document does not address the Program Planning phase for alternative delivery projects.

Project Development

Best Practices for the Project Development phase included:

- **Develop Processes and Procedures:** Develop formally-identified processes and procedures for documenting, tracking, and communicating environmental commitment identification and compilation and future completion tracking. The processes and procedures should discuss what needs to be done, who is responsible for implementing, and how the recommendations would be implemented in relation to other existing processes.
- **Develop and Apply Tools:** Develop software and other tools (spreadsheets, databases, websites, GIS applications and checklists) to help document, track, and communicate environmental guidelines and requirements throughout DOT organizations. The systems should have querying features that are applicable throughout the full life-cycle of the project. These tools are necessary to have environmental guidelines, processes, procedures and information readily available for answering



questions and responding to formal information requests with timely and accurate responses. Available tool could include Environmental Management Systems and Business Process Mapping:

- **Use Environmental Management Systems (EMS):** A customized agency and/or project-specific EMS could also be developed. In order to gain the institutional support for developing an EMS, one or more “champions” may be necessary to continually promote the benefits of the concept. With continued vigilance, the concept may gain the support necessary to pursue development of the system and eventual adoption of it as a standard process to be followed on all projects.
- **Use Business Process Mapping (BPM):** BPM involves identifying step-by-step business activities related to tracking environmental aspects during the course of a D-B project.
- **Assign Environmental Managers for the Duration:** Assign agency, consultant and contractor Environmental Managers who are engaged throughout the duration of the alternative delivery project. Have the Environmental Manager’s review and approve environmental issues in the preliminary design and ensure that the cost estimates for all phases of the work are consistent with projects requirements and the project budget.

Procurement

- **Develop Key Environmental Tracking Items before Writing the RFP:** Prepare the project’s Environmental Mitigation Tracking Form and the Environmental Permit and Compliance Requirements Checklists prior to release of the RFP. Define environmental expectations, performance metrics, and precisely what compliance will require for all commitments. Include these items in the RFP. The objective of the RFP process is to provide the contractor with as much information as possible so that contractor can determine the cost, schedule and qualifications that will be required to complete a mitigation measure. The more a contractor knows about the project and the owner’s process, the less of a risk the contractor will use to determine their price to build the project.
- **Develop Environmental Risk Allocation Guidelines:** Develop risk allocation guidelines between CDOT and the contractor for the project. Involve environmental specialists in the risk identification process.
- **Include Environmental Compliance Incentives and Disincentives:** Include incentives/disincentives for environmental compliance in the contract.
- **Include Environmental Contingency Scope and Budget:** The project budget should allow for unknown and unexpected environmental contingencies. A fund should be created for each project as a means of ensuring that adequate funds are available for such unknowns (e.g., an emergency hazardous waste incident). These funds would be included in the overall project budget, and would be over and above the contract price with the D-B contractor (DBC).
- **Review Contractor’s Past Performance:** Reviewing the contractor’s past environmental performance in the Pre-qualification process and disqualifying those that are not acceptable.



- **Involve Resource Agencies in RFP Review:** Reviewing the requirements of the RFP with the appropriate Resource Agencies. (Resource Agencies are those federal and state agencies that have jurisdiction over a particular environmental resource.)
- **Involve Agency Environmental Manager in Contractor Selection and All Life Cycle Phases:** The contractor should be required to have a CEM on staff throughout the D-B process to ensure that environmental commitments and regulations are followed, plan reviews show mitigation compliance, and the contractor has properly budgeted for the corresponding requirements. The Environmental Manager should have primary authority and responsibility for the environmental section of the RFP, all compliance work with permitting, environmental design and reviews, mitigation requirements, construction, and self-inspection of temporary and permanent best management practices. The CEM needs to be involved in the design phase to make sure that all environmental commitments are incorporated into the design; should have review authority to approve designs before they are released for construction; should oversee construction of environmental measures to ensure that they meet the intent of the environmental mitigation, regulations, and permitting; and be involved in the final acceptance of the project. The CDOT EM should be involved in all life cycle phases.

Construction

- **Develop Environmental Compliance Checklists:** Develop a construction inspection and close out checklists
- **Require On-Site Environmental Manager:** The CEM should be required to be on the construction site at all times, because this staff person will interpret plans and environmental specifications and self-regulate the construction project for environmental compliance.
- **Perform Comprehensive Construction Process Closeout:** An Environmental Management System (EMS) could serve as the foundation for the final environmental project review and internal agency approval. The EMS would have a list of environmental commitments, permits, and mitigation completed, and the date that each of the items was finished, checked-off by CDOT CEM and approved by the PM. Maintenance staff should be involved in the project close-out inspection to ensure that they know all the actions that must be taken upon assumption of operation and maintenance of the facility
- **Develop and Use Documented and Standardized Approaches:** Environmental compliance is most effectively achieved and produces maximum schedule and budget benefits when environmental EQA procedures, policies, and processes are well documented, defined, and standardized. The approach should apply checklists and electronic tools such as a website, a database, and/or a GIS application for environmental commitment tracking. A training program should be developed to ensure standardization. Efficiencies to be gained through documenting, tracking and communicating environmental commitment processes and procedures throughout the organization are essential to producing cost-effective D-B projects.
- **Ensure Contractors are Trained in Environmental Compliance:** Have contractor provide environmental training to on-site construction and maintenance personnel. Have the contractor



demonstrate environmental knowledge and expertise in their response to the Request for Qualification (RFQ).

- **Assign Dedicated and Qualified Environmental Managers:** Have the agency and the contractor assign Environmental Managers to be engaged throughout the duration of the P3 or Design-Build (D-B) project. Develop a comprehensive list of qualifications criteria for every potential environmental resource that could be encountered on a project.

Operations and Maintenance

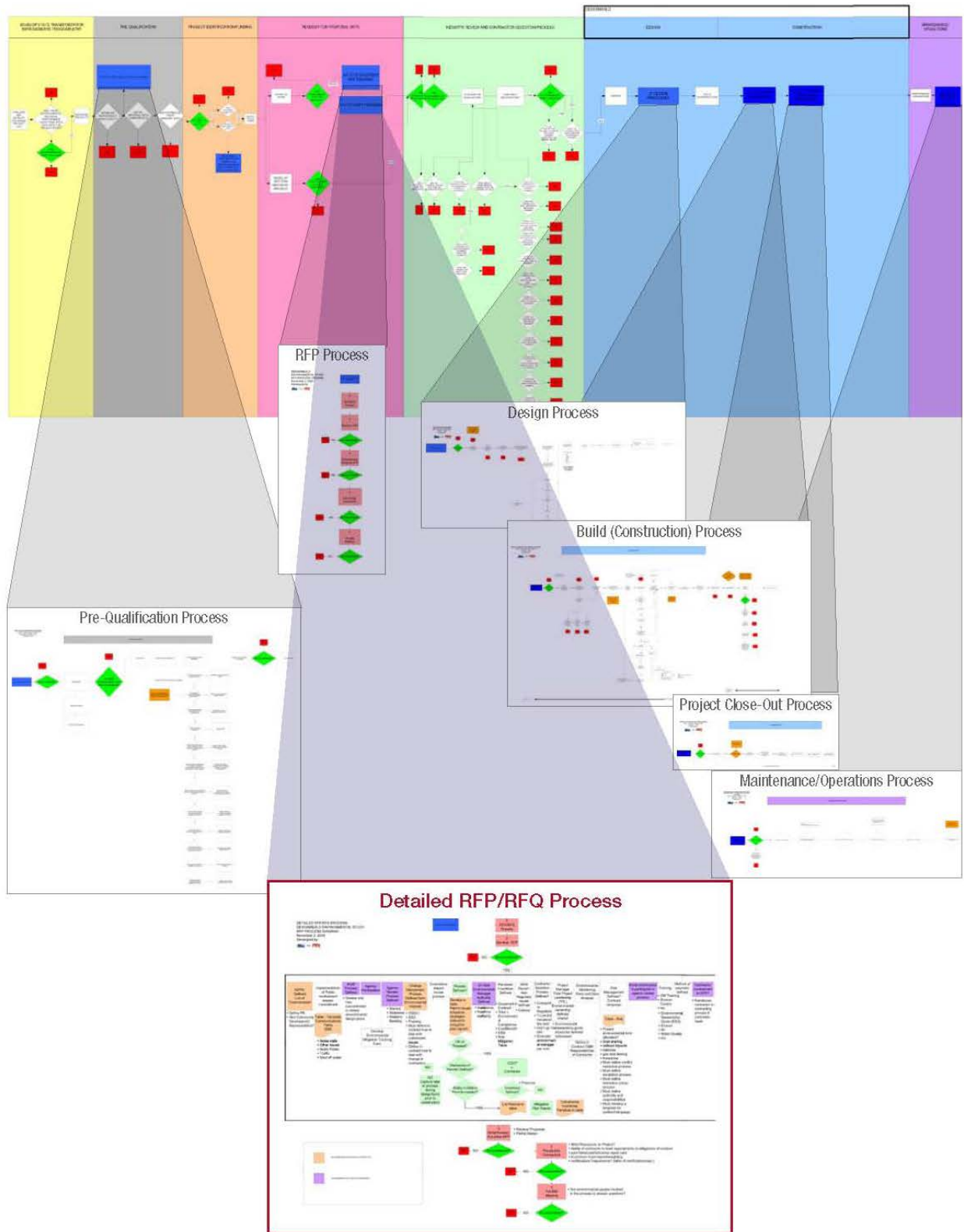
Best Practices for the Operations and Maintenance phase included:

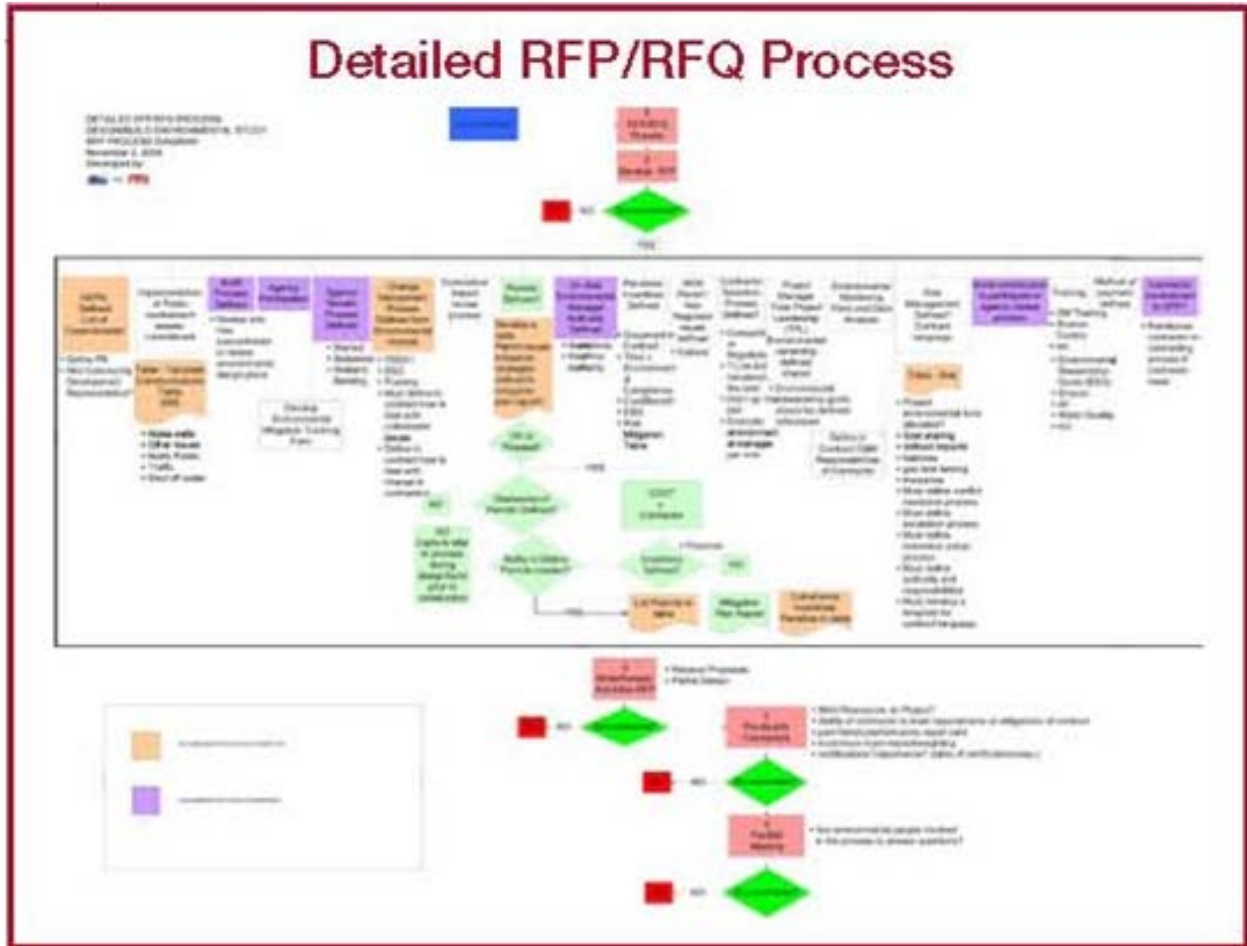
- **Involve Maintenance Staff:** Maintenance staff should be more involved in preconstruction activities. Maintenance should be involved in the project close-out inspection to ensure that they know all the actions that must be taken upon assumption of operation and maintenance of the facility
- **Define Responsibilities:** Define contractor's operations and maintenance (O&M) responsibilities related to environmental compliance in the contract
- **Develop Checklists:** Develop an Operations and Maintenance checklist. Develop a project close-out checklist (punch list)

Note:

The following process diagrams are available from CDOT in association with the Design Build Environmental Quality Assurance Research Study. Unfortunately, legible versions were not located for inclusion in this report.

DESIGN/BUILD ENVIRONMENTAL GUIDELINES BUSINESS PROCESS DIAGRAM





2. CDOT, *Design Build Manual*, April 15, 2006, revised June 11, 2014

Abstract

The Contents of this Manual reflect the lessons learned from CDOT’s design-build projects and within the State of Colorado. The Design-Build Manual, as accepted and published, represents the CDOT’s Procedure for Design-Build Contracting as identified in Policy Directive 504.0. CDOT requested that Policy Directive 504.0 be repealed when the Design-Build Manual was approved.

Relevant Environmental Best Management Practices for Alternative Delivery Mechanisms

The environmental section of this document sets forth CDOT’s environmental practices and procedures for design-build as follows:

Program Planning

None.

Project Development

- **Define Mitigation Responsibilities:** “Environmental compliance in design-build is a considerable risk to both the Department and design-builder. Because the Conceptual Design and Contract provide for horizontal and vertical variance the Design-Builder has the opportunity to develop an efficient



Final Design. The variations in the horizontal and vertical alignments in turn affect environmental mitigation measures. The mitigation measures are the responsibility of the Design-Builder to prepare, document, implement, and maintain until acceptance.”

- **Follow Requirements for Timing of Final Design:** Final design under a design-build contract shall not commence before compliance with section 102 of the National Environmental Policy Act of 1969 (42 U.S.C. 4332). However, FHWA does allow Final design for other types of alternative delivery to proceed in certain circumstances after FHWA grants permission, as allowable under the FHWA Every Day Counts Initiative.

Procurement

- **Prepare Thorough Scope and Clarify Risk Assignment:** The Department must provide a thorough scope with clear definition and risk assignment for all environmental activities. The NEPA Decision Document must be complied with along with Regulatory and permitting requirements. Clear scope and definition must be provided to identify all required permits, and the party responsible for securing the permits. The risk of implementing, maintaining and documenting permit requirements must be defined.
- Note: FHWA and proposed rulemaking for SAFTEA:LU allow the RFP to be released before the signed NEPA Decision Document has been issued. However, however CDOT’s current risk position is not to take this accelerating action.
- **Ensure Environmental Staff Collaboration:** To ensure environmental compliance the Department’s Environmental Manager and Project Manager must work together in the development of the Scope and RFP, and during the administration of the Contract.
- **Include the Following Scope of Work and RFP Content:** The Scope and RFP should:
 - Identify all required permits
 - Require the Design-Builder to prepare the permit application for the Department’s review and submittal when the Department is the permit applicant
 - Identify time frames for the expected application process
 - Identify mitigation requirements of the NEPA Decision Document
 - Require the Design-Builder to comply with all mitigation requirements of the NEPA Decision Document
 - Require the Design-Builder to develop, implement, maintain, and document Best Management Practices for the project design and per permit application requirements
 - Require the Design-Builder to comply with the CDOT / FHWA Stewardship Guide
 - Require “Key Project Personnel” on the Design-Builder’s team to include qualified environmental staff
 - Define minimum qualifications for the Design-Builder’s environmental staff



- Require the Design-Builder to identify, develop, implement and maintain mitigation measures resultant from their Final Design to gain Regulatory approval
- Require the design-build contractor to have scheduled coordination meetings with Regulatory Agencies
- Require the Work Breakdown Structure (WBS) to detail Environmental Compliance activities
- Identify impacted Wetlands by, type, function, value and acreage
- Use **Force Account**: The Contract should include a Force Account (F.A.) item for erosion control measures directed by the Department. These measures, and the use of this item, do not substitute for Contract or Permitting requirements resultant of the Design-Build Contractor's work. Pre-existing hazardous materials present a risk to both parties. The Department makes every effort to identify the type, location and quantity of pre-existing hazardous materials that may be encountered. These efforts, along with the unknown, still present significant risks. The Department's approach to managing these risks is to include in the Contract a Force Account method to compensate all related cost (for identified and unidentified locations) of pre-existing hazardous materials."

Elsewhere in the document, this guidance is provided:

- **Hold Stakeholder Meetings**: Prior to having a formal goal setting meeting as an early step in the procurement process, all identified goal setting stakeholders should be provided preparation materials for consideration and focus. The materials that may be useful include:
 - Project overview
 - Project proposed improvements
 - Project feedback from Public Surveys
 - Project financial scope (budget, cost and finance strategy)
 - Project Political or Community commitments
 - Project Environmental mitigation requirements and enhancement commitments

Construction, Operations, and Maintenance

These environmental Best Practices for these phases are not addressed in this document.

3. Arizona Department of Transportation, Office of P3 Initiatives, *ADOT P3 Program Guidelines*, August 30, 2011, Prepared by Jacobs Engineering

Abstract

The purpose of the Arizona Department of Transportation (ADOT) Guidelines is to document a clear, consistent, efficient and transparent process for the Department's interaction with the private sector related to its management of innovative project delivery contemplated by the governing statutes. The Guidelines address how ADOT will consistently manage the project development and procurement process, including project solicitation, evaluation and award.



Relevant Environmental Best Management Practices for Alternative Delivery Mechanisms

NEPA, Environmental Assessments and Environmental Impact Statements are not mentioned in the guidelines. These guidelines provide helpful policy and procedural information, but do not provide substantive Environmental Best Management Practices for any of the life cycle stages. The following practices are mentioned:

- Staff and resources from the environmental, construction, operations and construction areas of the Department should be available to the P3 Program to provide proper review and input to the evaluation of Proposals and implementation and oversight of P3 projects.
- Innovative delivery methods should improve air quality and provide other environmental benefits.

4. Federal Highway Administration, Every Day Counts Initiative (*Shortening Project Delivery Toolkit*) (this is no longer on the website)

<http://www.fhwa.dot.gov/innovation/everydaycounts/edc-1/PEL.cfm>

Abstract

<https://www.fhwa.dot.gov/everydaycounts/projects/toolkit/>

Every Day Counts (EDC) is an initiative introduced by FHWA Administrator Victor Mendez intended to identify and deploy innovation aimed at shortening project delivery, enhancing the safety of our roadways, and protecting the environment. In order to address these goals, EDC has been organized around three pillars: (1) reducing the carbon footprint of FHWA, (2) accelerating technology and innovation deployment, and (3) shortening project delivery.

This toolkit was developed by FHWA to support the idea that using innovative approaches will improve project delivery times. The toolkit presents the following approaches:

- Planning and Environmental Linkages (PEL) Studies
- Expanding Use of Programmatic Agreements
- Use of In-Lieu Fee and Mitigation Banking
- Clarifying the Scope of Preliminary Design
- Flexibility in ROW
- Flexibility in Utility Accommodation and Relocation
- Enhanced Technical Assistance on Ongoing EISs

Relevant Environmental Best Management Practices for Alternative Delivery Mechanisms

The approach called “Clarifying the Scope of Preliminary Design” is the only tool in the Toolkit that relates directly to alternative delivery. The "Clarifying the Scope of Preliminary Design" initiative explains the difference between preliminary and final design activities and answers the essential question of which preliminary design activities can be carried out during the NEPA phase and what must be deferred.

The approach discussion states “A complete description on allowable preliminary design activities are provided in FHWA Order 6640.1A – FHWA Policy on Permissible Project related Activities During the NEPA Process” and goes on to clarify the limitations on design activities during NEPA as follows:



Under CEQ Regulations for Implementing NEPA (40 CFR Part 1506.1), until an agency issues a Record of Decision no action concerning the proposal shall be taken which would limit the choice of reasonable alternatives. In addition, while work on NEPA is ongoing, agencies shall not undertake in the interim any major Federal action covered by the program unless that action would not prejudice the ultimate decision on the program and would not limit alternatives.

With respect to alternative delivery (design build), the following procurement Best Practice is presented:

- **Use Separate Notices to Proceed for Preliminary Design and Final Design:** For design-build projects in which a contract is awarded prior to the NEPA decision, the contract should be divided into two phases: Notice to Proceed 1 and Notice to Proceed 2. The work in Notice to Proceed 1 should be limited to preliminary design. The contract should clearly state that no commitment is being made to any alternatives under consideration in the NEPA process. It should also clarify that all alternatives will be fairly considered. The work in Notice to Proceed 2 should include final design and construction. The issuance of Notice to Proceed 2 is conditioned upon the selection of the appropriate alternative in the NEPA decision.

5. Pennsylvania Department of Transportation, *Providing for Public Private Transportation Partnerships—Implementation Manual & Guidelines, Approved for use January 9, 2013, www.P3forPA.pa.gov*

Abstract

The Implementation Manual & Guidelines provide guidance regarding Public Private Transportation Project (P3 Project or Transportation Project) development and implementation in the Commonwealth of Pennsylvania. This guidance applies to both solicited and unsolicited Transportation Projects across all modes including multi-modal and intermodal. The Public Private Transportation Partnership Board (P3 Transportation Board or Board) approves this manual for use by transportation agencies in the Commonwealth including the Department of Transportation (PennDOT) and other eligible Public Entities as well as any interested Private Entities

Relevant Environmental Best Management Practices for Alternative Delivery Mechanisms

Procurement

The following procurement phase Best Practices were identified:

- **Conduct an Environmental Risk Assessment Prior to Procurement:** To prepare for procurement, conduct a risk assessment of key project elements including environmental, scope and design elements, schedule, costs and revenue estimates.
- **Perform an Industry Review to Refine the RFP:** The goal of the Industry Review process is to refine the RFP to attempt to address Private Entity concerns, to the extent possible, in order to maximize competition and incorporate innovative and/or cost-saving ideas. The Industry Review process can prove mutually beneficial to the P3 Office, Public Entity and Private Entities. Hold Industry Review meetings to update and refine project information involving preliminary engineering, ROW acquisition, utility work, environmental clearances and the procurement schedule.



- **Require Private Entities to Submit Environmental Schedules and Approaches:** RFPs should include requests for a conceptual environmental schedule, technical approaches and environmental approval timing. The RFP should request information on the proposer’s ability to meet project environmental goals, perform the required environmental work, and succeed in terms of meeting environmental goals as part of past performance.

6. Texas Department of Transportation, Texas Facilities Commission, *Public-Private Partnership Guidelines, October 1, 2012*

Abstract

TXDOT developed and adopted P3 Guidelines for the purpose of encouraging private entity participation, creativity, and competition, and to guide the selection of qualifying projects in the public-private partnership development program. The TXDOT Guidelines furnish the private sector with a predictable and uniform process to:

1. *Respond to solicited proposals;*
2. *Submit unsolicited proposals; and*
3. *Provide for a fair and transparent evaluation and selection process for both solicited proposals and unsolicited proposals in accordance with Texas law.*

Relevant Environmental Best Management Practices for Alternative Delivery Mechanisms

The TXDOT P3 Guidelines focus on the procurement life cycle stage and define environmental requirements for submittals at this stage. Project Planning, Project Development, Construction and Operations and Maintenance phase environmental policies, procedures and practices are not addressed.

Procurement

The following environmental Best Practices were identified for the procurement stage:

- **Require the Project Development Plan in the Proposal to Include Environmental Factors:** The Project Development Plan should include an overview of the qualifying project, including a list of factors that may impact the qualifying project and the existing neighborhood or landowners, including potential political, economic, transportation, and environmental factors.
- **Address Public Input:** Anticipated public support or opposition for the project should be identified along with any affected jurisdictions.
- **Described Effects Analysis and Issues:** Identify environmental technical work that has been completed and address anticipated issues:
- **Adverse** social, economic, environmental and transportation impacts of the qualifying project should be measured against the Department's mission, design standards and any applicable ordinances of affected jurisdictions, including the strategies or actions to mitigate known impacts of the project.
- **Positive** social, economic, environmental and transportation impacts of the qualifying project should be measured against the Department’s mission, design standards and any applicable ordinances of affected jurisdictions.

- **Secure Interim Agreements Including Environmental Information:** The scope of an interim agreement should include environmental analysis and mitigation. The term "Interim agreement" means an agreement, before or in connection with the negotiation of a comprehensive agreement. The interim agreement may authorize the contracting person to begin activities or project phases related to the qualifying project including, but not limited to project planning and development, design, engineering, environmental analysis and mitigation, surveying, financial and revenue analysis, including ascertaining the availability of financing for the proposed facility or facilities, or any other phase of the qualifying project that constitutes activity on any part of the qualifying project.

7. Transportation Research Board, Strategic Highway Research Program (SHRP 2 C12), Report on the Effect of Public-Private Partnerships and Non-Traditional Procurement Processes on Highway Planning, Environmental Review, and Collaborative Decision Making, prepared by Parsons Brinckerhoff with Nossaman LLP and HS Public Affairs, 2015

Abstract

The specific purpose of this effort is to assess the interplay between the use of public–private partnerships (P3s) and transportation and environmental planning processes to identify whether P3s should be considered as a means to procure transportation improvements—and how and when they should be considered. The research is based on extensive interviews conducted with state transportation department and metropolitan planning organization (MPO) officials and private investors with hands-on experience of P3 project implementation. Study research is also based on review of relevant government laws and regulations and pertinent secondary source materials. P3 programs were reviewed from Arizona, Georgia, Louisiana, Virginia, and California.

This report focuses on opportunities to better integrate nontraditional procurement methods and public–private partnerships into the public transportation planning process. To set the stage, it reviews the definitions of the various forms of nontraditional procurements and summarizes the applications of each type in the United States. It includes a discussion of some early experience in the 1990s, both positive and negative, and provides a list of all public–private partnership projects in the United States that are either operating or under construction as of 2012. The report discusses legal issues such as state enabling legislation, federal statutes, and planning regulations.

A significant issue with respect to public–private partnerships is timing. Does the private sector become involved before or after completion of environmental review? It is more common after environmental review is completed, because that reduces uncertainty for private investors. However, design and construction creativity may be restricted at this late stage in the process, and changes introduced by the private partners may require a supplemental environmental review. The private sector may become involved earlier in the planning process, often through the use of a predevelopment agreement. However, the private sector is not well positioned to engage in right-of-way procurement or environmental review. The report discusses the pros and cons.

The report concludes that clear state and regional policies are critical. When states or regions have well-defined policies, such as the need to sustain a regional roadway system, it is possible to weave tolling and partnerships into a regional vision. This vision then leads to discussing public–private partnerships and toll options in long-range and corridor planning and thinking strategically about where these options may provide the most public benefit. It is important for public and private sectors to realistically assess which potential highway projects are feasible for a nontraditional approach. There is no single way to approach a partnership or tolling project; whatever approach is used, it must be flexible.



This report asks the following questions:

- How do these nontraditional procurement methods relate to the transportation planning and environmental review process?
- How can public agencies best plan to take advantage of these strategies.

The objective of this report is to determine at which decision points in the transportation planning and environmental review process public–private partnerships and nontraditional procurement methods can best be considered.

The report relates key decisions about the use of nontraditional procurement methods to the Decision Guide developed in other SHRP 2 work. The Decision Guide covers decision points in long-range planning, corridor planning, programming, and environmental review/permitting.

The emphasis of this report is on how and when to handle the possibility of tolling as a means of project funding and P3 as a related funding sources and alternative delivery technique.

While tolling and P3 are often implemented together and are interrelated, this is not always how they are implemented. The findings of this report support this distinction and offer Environmental Best Practices for these two elements of alternative delivery. The identified Best Practices were extracted from the report directly or were created by what is implied by statements in the report.

Relevant Environmental Best Management Practices for Alternative Delivery Mechanisms

The research findings on tolling included the following general environmental Best Practice:

- **Consider Issues throughout a Project’s Life Cycle:** Recognize that financing and funding are now pivotal to the project development process so better decisions require that design elements, such as tolling, should be addressed throughout a project’s life cycle, especially in pre-NEPA planning and as part of the NEPA process.

Program Planning

The research findings describe the difficulty of adding a P3 project to a metropolitan planning organization, regional and/or state transportation improvement plan due to funding uncertainties that complicate fiscal constraint requirement findings and meeting conformity and other related air quality requirements (carbon monoxide and particulates). The report states that “P3 project finance can be a significant issue prior to the completion of the environmental review process.”

The interplay of the NEPA and the planning processes requires close coordination, but the inherently different nature of these two requirements often causes delays. At the conclusion of the NEPA process, a preferred alternative is defined; however, final approvals can only be gained once the planning documents (MTP, TIP/STIP) and the P3 project in its final form are consistent.

Specifically, the report states:

“...the timing of the conclusion of NEPA and the completion of the STIP/TIP may not align. Projects are regularly included in the STIP/TIP while the environmental process is under way. However, if changes in the definition of a project occur (e.g., the location or configuration of ramps and interchanges or the number of travel lanes in a given segment), those changes need to be reflected in the links and nodes coded into the regional travel demand model that is used in the conformity analysis for the TIP. If the coding in the model is not 100% consistent with the



final definition of the project, then the final approval of the project would have to wait until the conformity process is next updated before gaining final clearance.”

Environmental Best Practices associated with encouraging and facilitating early consideration of P3s are:

- **Consider Tolling and P3s during the Planning Process.** The potential use of alternative delivery for a project should be discussed with MPOs, regions, State DOTs and FHWA as early as possible. If tolling and P3s are incorporated into the development of Regional Transportation Plans, there is less likelihood that this incorporation would need to be initiated during the NEPA process, which frequently delays the NEPA process.
- **Consider Developing Regional or State Policies on Tolling.** The North Central Texas Council of Governments has adopted a regional policy on tolling, mandating that all new limited access capacity be evaluated for priced facility potential and other facilities be similarly evaluated to maximize the use of available funds.

Project Development

The Project Development phase practices in this report recommend the following:

- **Incorporate Tolling and Other Alternative Funding into Purpose and Need Statements.** This makes it easier to eliminate alternatives that cannot be funded.
- **Incorporate Tolling and other Alternative Funding into NEPA Alternatives Analyses.** This is particularly useful if the long-range planning process has determined that the project needs to be funded by tolls or other non-traditional funding source in order for the long-range transportation plan to be fiscally constrained. A caution related to this approach is that if there is public controversy about the use of tolls on a road, it is advisable to examine non-toll alternatives to help avoid future litigation.
- **Consider an EIS rather than an EA or Categorical Exclusion.** There may be merit in proceeding under the assumption that an EIS is necessary for a project that incorporates private sector financing simply because such documents are easier to defend in court. Regardless of the type of document, allowing many opportunities for public review is highly recommended.
- **Make Sure the Project Definition is Aligned with Revenue Potential and Available Funding.**
- **Develop Data Collection Plans Considering What Private Proposers need to Better Understand Risk.** Geotechnical data is one risk factor that is frequently not a major focus during the NEPA phase but it may be a major risk factor for a private sector partner. There are likely other factors that may need to be considered.
- **Use Study Area Limits that are Generous rather than Restrictive.** Expansion of study areas in environmental documents may reduce schedule delays and enable greater design flexibility, which is important because the design in the NEPA document may be modified after private sector proposers are involved.
- **Carefully Consider Appropriate Level of Design During NEPA.** During the NEPA process, design is usually advanced to approximately 30% , except in areas of sensitive environmental resources (wetlands, endangered species habitat, Section 4(f) properties). In those areas, in order to meet the



requirements of other federal laws, design and mitigation is typically advanced further. This creates a disincentive for the private contractors and may negate the advantage to the public agency of using a P3 contractor. Possible ways to approach this issue are to work out in advance agreements with regulatory agencies to minimize their needs to advance design or to consider entering into a pre-development agreement with a private contractor while the NEPA process is underway. Use of a CM/GC Contractor can serve this same purpose.

Requirements of the Code of Federal Regulations (CFR) have been expressed as a Best Practice as follows:

- **Comply with Federal Regulations:** Follow these requirements during the Project Development Process—
“Section 636.109 of Title 23 C.F.R. provides specific constraints applicable to public owners that intend to award a design–build contract (including P3 contracts) before the completion of the NEPA process (see also 23 U.S.C. § 112). Consistent with the specific protections put in place through NEPA regulations (see 40 C.F.R. pt. 1506.1 [restricts certain actions during the NEPA process]); Section 636.109 includes provisions stating that before the completion of the NEPA process:
 - The public owner may authorize the private entity to proceed with preliminary design (as defined).
 - The private entity may provide assistance in defining the project alternatives, but cannot prepare the actual NEPA document or have any decision-making responsibility with respect to the NEPA process.
 - The design–build contract must prohibit the private entity from proceeding with final design (as defined) or physical construction activities for any project component for which the NEPA process is not complete.
 - The design–build contract must ensure that the merits of all alternatives, including the no-build alternative, are evaluated and fairly considered and that no commitments are made to any alternative being evaluated under the NEPA process.
 - The design–build contract must include termination provisions in the event that the no-build alternative is selected.

These practices enable public owners to obtain the benefit of bringing the private entity into the project early enough to allow it to participate in shaping project concepts while also protecting against the possibility that the private entity’s participation could improperly influence the environmental review process.

The following general measure is also provided:

- **Require Independent Development of Alternatives:** Require the NEPA scoping, purpose and need, alternative development and evaluation processes and NEPA document alternative descriptions be performed independently by the public agency and acknowledge the possibility or necessity of alternative delivery such as tolling to enhance understanding and provide flexibility while avoiding predetermination.



The research findings on P3 are mixed in terms of defining more specific environmental Best Practices for P3, but ultimately recommendations are provided. The mixed results reflect the advantages and disadvantages of early disclosure of P3 possibilities and commitments vs. post-NEPA (procurement and construction phase) analysis of P3.

The advantages of early disclosures of P3 possibilities and commitments in Program Planning and Project Development phases, rather than post-NEPA (Procurement and Construction phases) include:

- Provides full public disclosure, builds awareness and may support consensus
- Allows for a clearer financial analysis in statewide, regional and local planning processes and associated decision making
- Offers a complete environmental review process (scoping, alternative development, alternative evaluation, effects analysis and preferred alternative selection), allows incorporation of environmental measures to avoid and reduce effects, and limits the potential for subsequent NEPA reevaluation
- Optimizes the opportunity for private-sector innovation, flexibility and acceleration of an optimally feasible project

The disadvantages of early disclosures include:

- Increased public concern over alternative delivery uncertainties
- Increased involvement, financial liability and risk for private sector participant(s)
- Inability to be precise with alternative descriptions or financing plans
- Challenges in defining how P3, as a delivery mechanism, actually influences alternative identification, evaluation or selection, or whether it causes or doesn't cause potential effects that might otherwise be missed thereby requiring NEPA reevaluation.
- Impartiality of the NEPA process and the possibility (perceived or otherwise) of private-sector influence over the selection of alternatives carried forward and/or the preferred alternative.

Although the report states “there has been limited experience in practice to judge the success of a systematic application of using the purpose and need and NEPA alternatives process,” the report ultimately identifies the following project development Best Practice:

- **Provide P3 Basics During the NEPA Process:** Consideration of P3 alternatives should be folded into the NEPA process at the earliest state, such as development of purpose and need and alternatives. P3 activity should begin simply with alternative funding and financing strategies. P3 details should come at a later point (post-NEPA). For example, if tolls are considered the same thing as P3, the viability of tolling can be limited as a standalone strategy and the lack of financing tools and uncertainty about details will not be available until much later in a project's development process. The lack of detail can create unnecessary NEPA process issues.

The report states:

- “There is general movement away from early private involvement in NEPA by public project sponsors and private development partners alike. An optimal outcome may be to use the NEPA

process to consider the possible private development of transportation projects and inform the ultimate decision whether to proceed with a project on a P3 basis.”

- “Although there is merit in engaging potential private partners early on in the definition of projects, the research reveals there is movement away from doing so. Private developers prefer to avoid the risks associated with gaining environmental clearance, whereas public sponsors want to maximize competition and avoid the appearance that private involvement may influence the outcome of NEPA reviews.”
- “By prohibiting the private entity from proceeding with final design or with construction for any project segment before completion of the NEPA process, the regulation guards against the risk of a private entity intentionally or unintentionally pushing a public owner toward a particular alternative. These constraints also protect the private entity from risking loss of significant amounts of money expended in support of a project alternative that ultimately is not selected.”
- “...even if the private sector is not involved in the NEPA process, the fact that a project is likely to be procured as a P3 should be made clear in the NEPA document” (purpose and need and elsewhere) “and public involvement activities should be conducted as part of the NEPA process, even when the conditions of P3 procurement have no bearing on the environmental impact of the project.”

This finding/recommendation is complicated by the possibility of receiving an unsolicited proposal at any phase of a project’s life cycle and by the notion that tolling and P3 can be simply characterized as funding options only, or perhaps more accurately as funding options that may generate substantive influences on project designs and alternatives that cause impacts that need to be disclosed and addressed with avoidance, minimization and/or mitigation strategies.

Despite a mix of issues and considerations, the report identifies the following general environmental policy recommendations for addressing the potential for P3, as a delivery mechanism and as possible source of private funding/financing.

- **Customize P3 Agreements:** Create specialized agreements to address each applicable stage of a project’s life cycle, including public and private responsibilities at those stages, especially with respect to NEPA Reevaluation steps.
- **Consider Flexible Alternative Delivery Possibilities:** Avoid precise details and apply conceptual possibilities for alternative delivery project features and options. Disclose possibilities during scoping and in the Notice of Intent. Include financial needs that support alternative delivery (P3). Define inclusive footprints of possible alternative delivery options. Clarify alternative evaluation criteria for evaluation of alternative delivery (P3) options. Apply mitigation applicable to alternative delivery options.

Note:

FHWA has also established Special Experimental Project 15 (SEP-15), which allows experiments more specifically focused on P3 projects. The stated intent of SEP-15 is to allow agencies to explore alternative contracting, environmental approval, right-of-way acquisition, project finance and transportation planning processes that deviate from Title 23 U.S.C. and applicable FHWA policies and regulations—subject to the caveat that the FHWA’s experimental authority does not allow it to waive laws outside of Title 23 U.S.C. or the policies and regulations of any agency other than FHWA. Various state DOTs have



used this program to explore innovative techniques on federal-aid P3 projects. According to the FHWA’s website, DOTs from Alaska, California, Florida, Idaho, Mississippi, Oregon, Texas, and Virginia have used the SEP-15 program (FHWA 2012b).

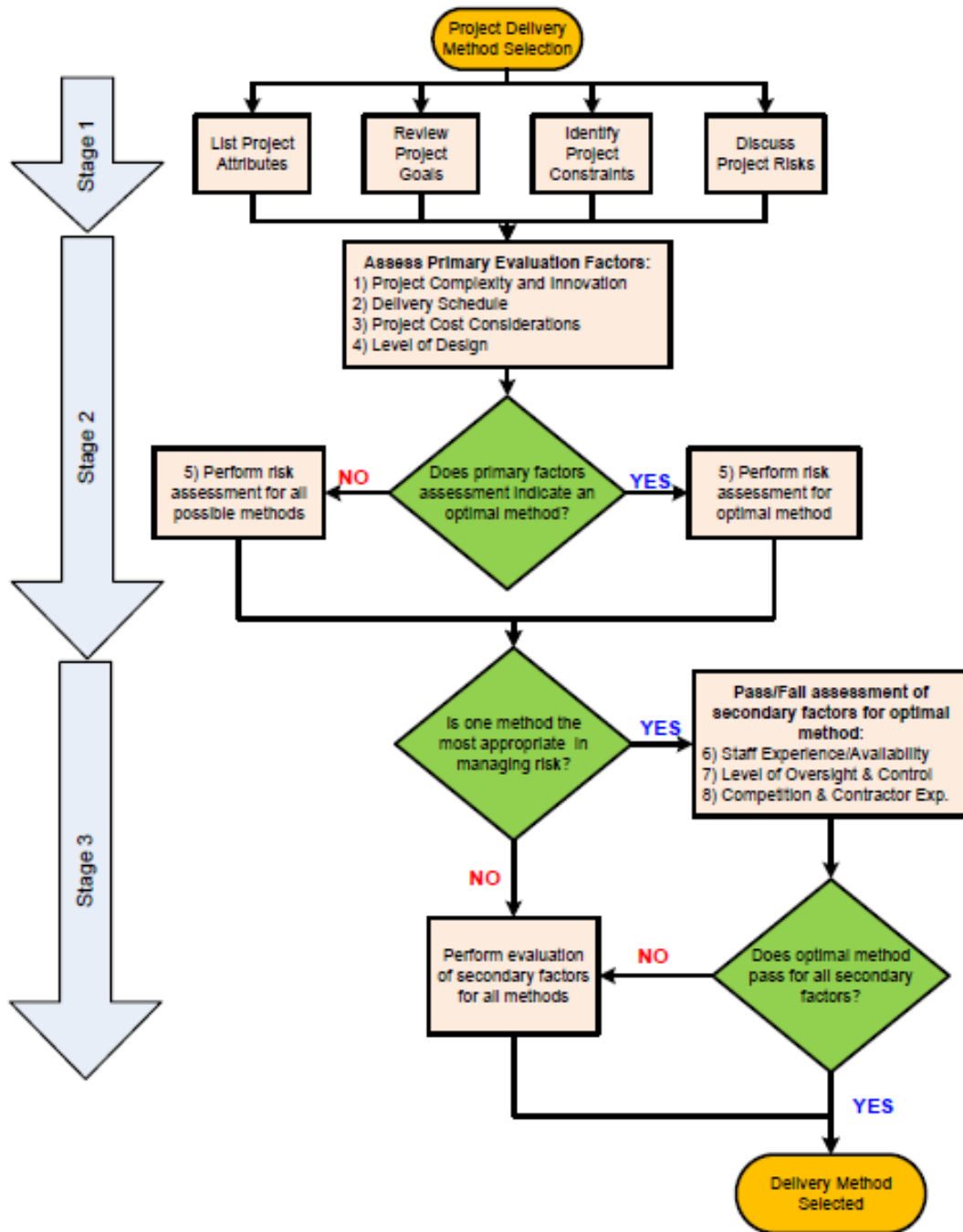
These same agencies have used SEP-15 to enter into P3 agreements before completion of the NEPA process—enabling them to integrate private-sector ideas and innovation into the environmental/permitting approval process and to streamline the process of obtaining loans under TIFIA [23 U.S.C. §§ 601-609 (2006)]. As previously noted, current design–build regulations permit award before completion of the NEPA process: the change in the regulation was the result of direction from Congress in the 2005 transportation reauthorization bill, known as the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) [see 23 U.S.C. § 112(f), added by §174 of Pub. L. No. 109-59, 119 Stat. 114 (2005)]. Although the FHWA continues to encourage SEP-15 applications, no SEP-15 projects have been approved since 2008 (FHWA 2012b).

8. CDOT, Innovative Contracting Advisory Committee, *Project Delivery Selection Approach*, August 28, 2012

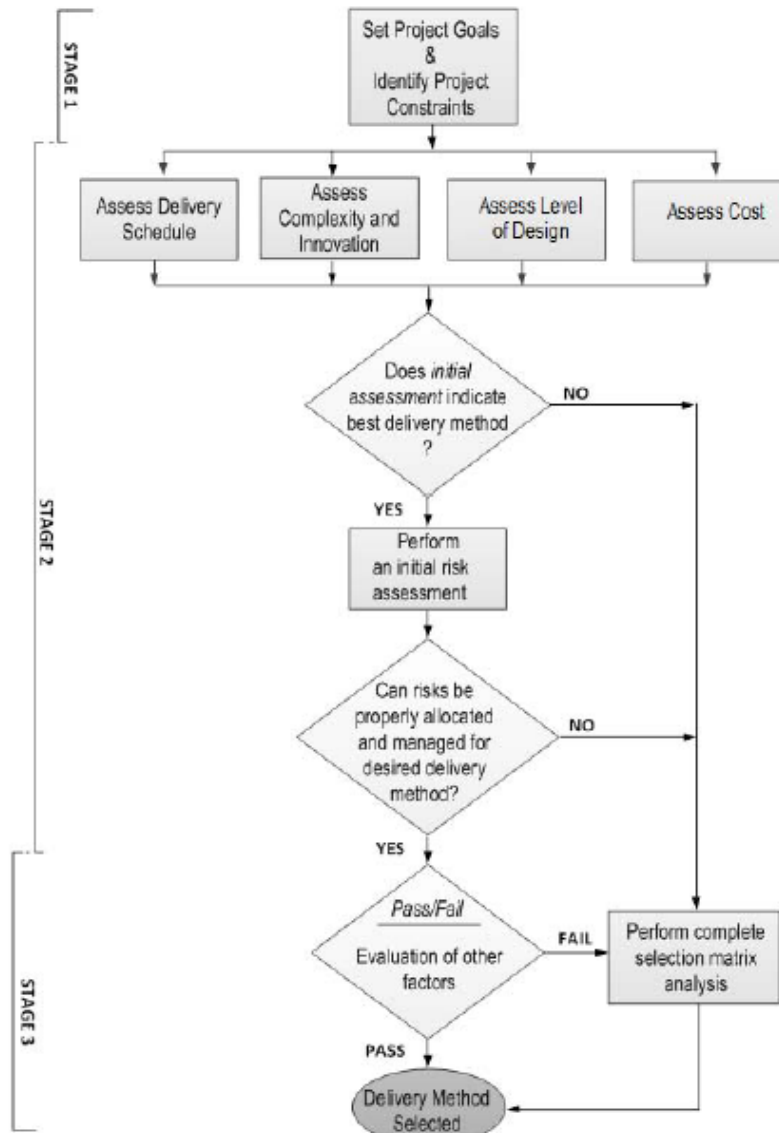
Abstract

The following flow charts describe a three stage process to select a delivery method.

NOTE: this chart is not in the document referenced above.



Flowchart of the Project Delivery Selection Process



CDOT Project Delivery Selection Flowchart

Relevant Environmental Best Management Practices for Alternative Delivery Mechanisms

Procurement

- Use Risk Assessment Processes and Checklists:** The procurement should request the development and use of risk assessment processes and checklists to provide the project proponent, the designer, and the contractor the opportunity to collectively identify and minimize project risks, and allocate risk to the appropriate party. This practice has the potential to minimize contractor contingency pricing of risk, but can lose the element of competition in pricing



9. Virginia Department of Transportation, Alternative Project Delivery Office, *Design-Build Procurement Manual, October 2011*

Virginia Department of Transportation, Virginia Office of P3s, *Manual and Guidelines for the Public-Private Transportation Act of 1995 (As Amended), November 2014*

Abstract

The Procurement Manual provides an overview of the process that VDOT will follow for the procurement of Design-Build contracts for transportation projects. This manual also provides information and guidelines for developing a project scope, assessing risk, advertising and evaluating Proposals, managing information exchange and awarding contracts on transportation projects using the Design-Build contracting method.

The 2014 Virginia PPTA Implementation Manual and Guidelines provides an updated project delivery framework which actively identifies, evaluates, develops and delivers Virginia's public-private partnership (P3) transportation projects in a consistent, transparent, timely and cost effective manner. The document provides details on the P3 processes within the Framework and address roles and responsibilities for both Solicited Projects (i.e., projects initiated by the Commonwealth) and Unsolicited Proposals (i.e. proposals submitted by the private sector for consideration).

Relevant Environmental Best Management Practices for Alternative Delivery Mechanisms

The VDOT process requires the Technical Proposal to be consistent with previous NEPA approvals and states that, if not, additional NEPA documentation may be required. The following environmental Best Practices are identified:

Program Planning

- **Set up Alternative Delivery Pipeline:** The alternative delivery project pipeline should identify potential candidate projects. Opportunities for public involvement and feedback should be made available during the development and review of the draft list of projects.
- **Define Priorities for Alternative Delivery Projects:** Alternative delivery projects that have approved or pending state and federal environmental clearances, secured significant right of way, have previously allocated significant state or federal funding, or exhibit other characteristics that could reasonably reduce the amount of time to develop and/or operate the Qualifying Transportation Facility should be prioritized for movement into the next life cycle phase.

Project Delivery

None.

Procurement

- **Use RFP Environmental Evaluation Criteria:** The evaluation criteria should include the bidder's project understanding, management approach and organizational structure; demonstration of applicable experience, manpower and equipment resources; experience in obtaining environmental permits, obtaining right-of-way and successfully completing other Design-Build projects.
- **Complete NEPA Prior to Procurement:** The applicable environmental document should be completed in accordance with NEPA prior to inviting proposals for alternative delivery projects. At this point, the purpose and need for the project will have been established, alternative design



concepts and scopes will have been analyzed, and operational features will be identified. The concepts and analyses should be submitted to the public and various other stakeholders for review and comment, and, ultimately, a preferred alternative has been selected and a determination such as a Categorical Exclusion (CE), Finding of No Significant Impact (FONSI), or Record of Decision (ROD) will have been issued by the appropriate lead federal agency.

- **Use Best Value:** Best value considerations should consider adverse and beneficial economic development, social and environmental effects.

Construction, Operation and Maintenance

None.

10. CDOT, Office of Major Project Development, *Project Diagnostic Reviews I-25/Cimarron Interchange and SH 82 Grand Avenue Bridge, prepared by HDR, November 3, 2014*

Abstract

CDOT OMPD conducted project diagnostic reviews on two projects in different phases of project development. Grand Avenue was working toward completion of NEPA and preliminary design and had chosen the CM/GC method of project delivery. The Contractor was selected and part of the team. The NEPA process for the Cimarron project had been completed several years prior to the review and was in the RFP phase of selecting a Design-Build team at the time of the review. The budget for Grand Avenue project had grown substantially from the planning estimate. The budget for the Cimarron project had remained steady for the last four years without any adjustments made for market conditions. Concerns had been expressed that both project scopes had changed from their initial project goals and purpose and need to include elements that had considerably increased costs.

The diagnostic review summarized the “voiced concerns” about each project and the findings of the OMPD participants related to those concerns. Detailed summaries of the diagnostic reviews are included in the report.

Common areas for both projects that accounted for the increased scopes and budget were:

- Initial cost estimates were developed in early stages or several years ago with assumptions that changed over the life of the project. Increased scope and budget
- Project goals included aesthetics, and the project development process involved local stakeholders to determine the type and extent of the desired aesthetics.
- The process to choose project delivery method was influenced by local factors and assumptions without an objective review of the decision.
- The need to accelerate project schedules contributed to the selection of Design-Build and CM/GC delivery methods.
- The level of involvement of local agencies and stakeholders to maintain support for the project resulted in longer decision-making processes and added scope.
- The decisions made during the NEPA and Conceptual Design phases of project development had the greatest impact on project scope, schedule, and budget.

Relevant Environmental Best Management Practices for Alternative Delivery Mechanisms



The following procurement phase Best Practices suggested by the results of the diagnostic reviews focused on Request for Proposal (RFP) content suggestions:

- **Retain a Base Scenario:** Retain the original project goals and corresponding base project elements/components to the extent possible to avoid budget increases and NEPA reevaluation.
- **Allow for Contingencies:** Provide contingencies for higher NEPA and environmental risks linked to project circumstances
- **Plan for NEPA Reevaluations:** Plan the schedule to allow for NEPA changes that would address additional project benefits, reduce project costs, modify potential effects, change study area limits, and acknowledge how unanticipated development may influence right-of-way requirements and how updated utility issues and commodity prices may influence previous cost estimates and associated NEPA findings.
- **Consider Inefficiencies Linked to Staff Turnover:** In the RFP, request that the proposal address NEPA complexities associated with agency staff turnover.
- **Plan for Public Controversy:** Address public controversy over design changes, alternative delivery and new sources of funding.
- **Anticipate Changes to Regulations and Guidelines:** Account for new regulations and guidelines that may apply or be changed by new project elements and the potential results of further analysis of issues such as Phase II hazardous materials investigations to address the potential to add mitigation, increase costs, modify schedules and increase project complexity.
- **Account for Anticipated Design Changes and Additions:** The project and the associated environmental processes should address phasing, with the base project element/components as Phase I with phased additions that make up the parts of the ultimate project configuration. The project's purpose and need should be used to control unbudgeted environmental scope expansion while allowing for reasonable changes to address innovative approaches.
 - **Develop Binding Agreements:** Local government and MPO partnerships that include project enhancement, corresponding funding and support should be encouraged, formalized with binding agreements (Oversight Agreement, Intergovernmental Agreement and/or Memorandum of Understanding), be supported by effective communication strategies, and become integrated into the procurement and NEPA process along with other new sources of funding, but should also be supported by realistic analysis of the balance between scope increases and budget adequacy that may require managing expectations, making decisions about tradeoffs and formalizing new responsibilities for who is responsible for added costs.

General

The report did not discuss or define Project Planning, Project Development, Construction or Operational and Maintenance phase Best Practices. However, the following overall Best Practices were recommended:

- **Develop Overall Policy:** An overall environmental policy for alternative delivery should be developed that is applicable to all project life cycle phases. It is helpful if this is adopted and



implemented by MPOs and state DOTs, so it is considered during the earliest phases of the project. The following examples were provided:

- **Clarify Public Involvement Processes:** Provide clear direction on what environmental work and what level of public involvement is expected before and after alternative delivery method selection to address key issues and maintain public engagement and support (All Phases).
- **Clarify Mitigation vs. Compensation:** Clarify the difference between compliance with mitigation, permit conditions and regulatory compliance with “compensation for being inconvenienced” and with project upgrades and enhancements and corresponding responsibilities (Project Development)
- **Clarify Appropriate Level of Mitigation Specificity:** Define the level of “prescriptive” specificity required in the alternative descriptions and the mitigation commitments to allow for appropriate levels of flexibility later in the process when details of this type may constrain innovation and/or cost saving techniques (Project Development).
- **Consider Planning and Environmental Linkages Studies:** Provide options for early focused analysis such as Planning and Environmental Linkages (PEL). These studies could be used to narrow the range and scope of alternatives subject to further review and environmental review prior to NEPA and/or reevaluations (Project Development).
- **Clarify Level of Design Specificity:** Provide guidance on what level of design is best for various NEPA and other technical disciplines, including clarity on specific design elements, risks of moving forward early and roles and responsibilities for reevaluation if needed (Project Development).
- **Clarify Requirements for Environmental Reviews:** Clarify when it is best to submit NEPA reevaluations and how the decision to move forward with those reevaluations. Allow sufficient time in the P3 process to allow these to be reviewed and processed. (Project Development).

11. Federal Highway Administration Colorado Division and Colorado Department of Transportation, *Environmental Consultant Contracts*, May 2015

Abstract

In carrying out the Federal Highway Administration's (FHWA) stewardship and oversight responsibilities, the Colorado Division identified environmental consultant contracts as a topic for review in the 2014-2015 Colorado Division Unit Performance Plan. A joint CDOT/FHWA review team was formed to assess the effectiveness of management of environmental consultant contracts used to fulfill the National Environmental Policy Act (NEPA) requirements.

The purpose of the assessment (Process Review) was to explore project costs and timelines associated with contracting and environmental processes. The Process Review also served as an opportunity for CDOT and FHWA to determine how well environmental consultant contracts for EAs and EISs are developed and managed to identify areas for increased efficiency and improvement. The objective of the Process Review was to determine whether CDOT:

- *Adequately developed the environmental consultant contracts*
- *Adequately managed the environmental consultant contracts*
- *Adequately processed changes and additional to environmental consultant contracts.*



The review team analyzed a sample of projects of various sizes, cost, and NEPA Class of Action. The team selected five EA projects and three EIS projects with consultant contracts from federal fiscal years 2007 to 2015. These projects were sorted by CDOT region and cost. The review focused on CDOT’s oversight of environmental consultant contracts for the selected EAs and EISs. Categorical Exclusions (CEs) were not included, as they are primarily developed through Non-Project Specific contracts.

Relevant Environmental Best Management Practices for Alternative Delivery Mechanisms

This document does not specifically address alternative delivery, but identifies eight successful CDOT practices numerous recommendations that are applicable to traditional and alternative delivery.

CDOT’s successful practices are presented here as Best Practices:

- **Complete Independent Cost Estimates (ICEs):** Complete an independent cost review and estimate for projects and Task Orders totaling over \$100,000 and include performance reviews at the end of the contract relative to the original scope of work and budget.
- **Apply Cost + Fixed Fee Contracts:** Use Cost + Fixed Fee contracting where the fee is negotiated after the consultants are selected. This process results in consultants being selected primarily based on qualifications. In using the Cost + Fixed Fee method, the number of hours is agreed upon and the established fee remains constant even if additional hours are required to complete the project. With a fixed fee, there is less incentive to prolong the project.
- **Use Chartering Agreements:** Use chartering agreements to help the NEPA and project management process maintain focus and schedule timelines.
- **Prepare Planning and Environmental Linkage Studies (PEL):** Use PELs to provide continuity and guidance between the planning and environmental processes. PELs have been used to provide project scope prior to the NEPA process as well as a gathering of existing information and summary of planning activities. This further helps to reduce the uncertainty for the environmental consultant contract.
- **Use Non-Project Specific (NPS) Contracts-** Uses non-project specific contracts for categorical exclusions and other environmental work that may be needed, like individual resource surveys or mitigation monitoring. This practice helps to keep costs down.

The recommendations that were provided are divided into the following key topic areas:

- Scope of Work & Contracting
- Project & Cost Management
- Roles & Responsibilities

The following presents the Process Review’s “Summary of Recommendations” as Best Practices.

- **Manage Consultant Contracts Jointly:** Manage environmental contracts jointly involving Environmental and Engineering Project Managers. This involvement should include: the development of the scope of work, management of the contract, decisions to change the scope, budget, or schedule, and the review and approval of invoices. Clear direction should be provided by management to the consultant team throughout the contract duration.



- **Involve FHWA:** Ensure FHWA Area Engineers are involved early in the project development process, especially as FHWA moves toward a more risk-based stewardship approach.
- **Provide a Contracting and Management Toolkit:** Provide a toolkit (NEPA Manual, Project Development Manual and GESOW) for consultant contract development and management. The toolkit should be included in the Consultant Contract Management Course for CDOT staff.
- **Provide Independent Reviews:** Provide an independent review of the NEPA process for large complex projects on a systematic basis. Reviews should be considered when the environmental process has been underway for more than two years and again every two years until the NEPA process is complete. The review should cover scope of project, scope of work, cost, and schedule. Changes to these items need to be documented to monitor and control scope creep.
- **Monitoring Processing of Contracts:** Monitor consultant contracts and task orders to identify opportunities to expedite and streamline the process. Clear direction should be given to consultants throughout the contract duration.

12. Build America Transportation Investment Center (BATIC), *Successful Practices for P3s*, March 2016

Abstract

This report provides a description of common P3 formats (organizational structures), revenue mechanisms and recent experiences in the U.S (Chapter 1), and then describes P3 legislation and policy (Chapter 2), project development (Chapter 3), procurement (Chapter 4), monitoring and oversight (Chapter 5) and cross-cutting themes (Chapter 6).

With respect to environmental Best Practices, Chapter 2 emphasizes the importance of proactive public outreach as a means of achieving legislation, policy and project buy-in and recognizes the importance of local champions who can serve as a rallying force to gather political and public support. Chapter 3 emphasizes these points and provides additional environmental process management Best Practices.

Relevant Environmental Best Management Practices for Alternative Delivery Mechanisms

- **Develop a Thorough Understanding of P3 Concepts through Public Education and Involvement:** Develop and distribute clear documents and communications that explain the processes, and implement robust public deliberation and participation opportunities early in the P3 process. Uses a full range of outreach techniques, including digital media to reach participants. Identify and use local “champions” who can serve as a rallying force to gather political and public support and explain associated processes.
- **Use the NEPA Process to Define the P3 Approach and Processes, but Allow for Flexibility:** Include P3 details in the Proposed Action description allowing the completed NEPA document to cover important details. This will encourage private sector interest by reducing post-NEPA risks. However, avoid providing details that would limit private sector innovation.
- **Clarify the Purpose of Traffic and/or Ridership Forecasts:** Describe the purpose of the traffic or ridership forecast used in the NEPA analysis and the traffic forecast used for P3 revenue generation purposes if they are different. The P3 forecast may be more conservative in terms of limiting



potential revenue, while the NEPA forecast may be higher to address a higher range of potential impact.

- **Use Predevelopment Agreements:** Use a pre-development agreement (PDA) to address environmental issues and the procurement of technical tasks involving preliminary project design that are assigned to private firms
- **Structure P3 Procurements to Align with the Environmental Process.** Structure P3 procurements such that bidders can realize any of the alternatives considered in the NEPA process and make sure that the procurement does not prejudice the outcome of the environmental process (selection of the preferred alternative).