



DATE: February 20, 2019

TO: Transportation Commission

FROM: Joshua Laipply, Chief Engineer

SUBJECT: Construction Contracts and Administration - Continued

Purpose

Briefly recap the contracting methods CDOT utilizes for construction. Describe how current CDOT process includes force account work (essentially planned changes), in the categorization of "changes". Discuss current CDOT systems responsible for reporting and tracking changes. Solicit Commission input regarding proposed staff recommendations for near-term and long-term system/process improvements.

Action

Approve, modify or reject CDOT staff recommendations.

Details

Over the last month CDOT has reviewed our procedures and how we track and define a change on a project. This led us to identify some key areas for improvement and change:

- Better define and track changes associated with projects. Separate changes (owner initiated changes, unforeseen conditions, and design errors and omissions) from force account items (e.g. quality incentives, risk mitigation cost adjustments (e.g. fuel), known items with unknown quantities). Track changes by category and provide a structure to report.
- Modify structure of funding for bid items on projects. Some bid items such as construction trailers are not charged directly to projects but rather to a separate construction engineering pool (CE Pool). This leads to a discrepancy when comparing project level data between systems used for construction project administration (Site Manager (AASHTOWare)) and financial system of record (SAP). After modifications SAP will accurately reflect project level expenditures.
- Establish more clear and consistent quality control procedures for plan and specification preparation. This could include Contractor reviews prior to advertisement, plan checking sign offs, etc. These steps will help minimize design errors and omissions.
- Review the Dispute Resolution Board specification. On our Public-Private Partnership projects (P3s) we have made changes to the Dispute Resolution specification based on previous projects and lessons learned. Projects that are not P3s may also benefit from some of these revisions.

The approach to minimizing total project costs are a combination of mitigating risk and achieving the goals associated by selecting the right contract, maintaining an appropriate amount of flexibility for unforeseen issues and design errors and omissions. CDOT staff feels that more detail is needed on our tracking process, consistency in quality reviews, and structural changes to process to ensure that the data is easily available to ensure the appropriate flexibility is in place. In addition reviewing potential changes to the dispute resolution specification based on recent P3 experience may be beneficial.

Attachments

Presentation





COLORADO

Department of
Transportation

Construction Contracts and Administration - Continued
2/20/19



Agenda

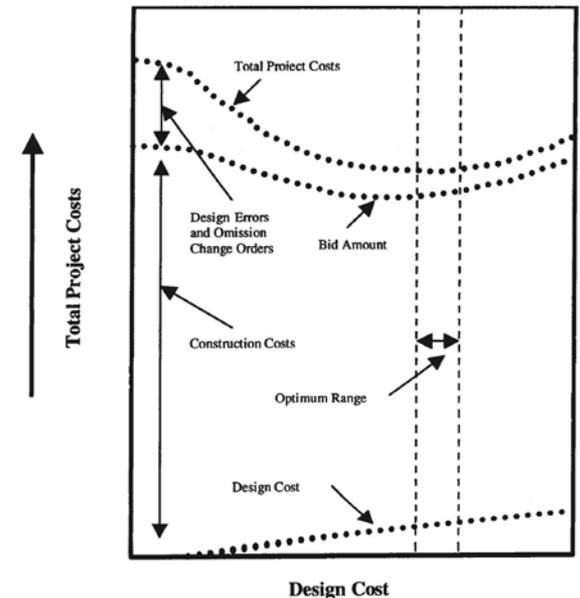
1. Recap from January TC Workshop
2. Recent Analysis Results
3. Proposed Actions
4. Questions/Comments



Recap:

Key Takeaways from January TC Workshop

1. CDOT utilizes design-bid-build, design/build, and construction manager/general contractor. The vast majority of projects are design-bid-build
2. CDOT is committed to minimizing total project cost but all projects have changes that could add to the cost (owner initiated changes, unforeseen conditions, and design errors and omissions)
3. CDOT construction budgets include allocations for force accounts and minor cost revisions thus reducing need to secure additional funding as changes occur





Recap:

Typical Construction Budget Structure

1. Transportation projects include a limited number of distinct work elements (pavement, striping, etc.) and it is common for bids to be based on combination of lump sum and unit price items
2. CDOT bid forms include lump sum items (e.g. mobilization) and unit price items (e.g. square yards of asphalt)
3. Contract bid amount is based on CDOT provided quantities and contractor provided unit pricing
4. CDOT's construction budget also includes force account items (i.e. fuel cost adjustment, pavement smoothness incentive, and others) and minor contract revisions (i.e. changes)
5. As construction progresses, payment is made based on contractor unit pricing and actual installed quantities which will vary from basis of bid





Recap: Project Bid Tabulations

Item Code	Description	Quantity	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
SECTION:	0001	BID ITEMS					LCC:	
213-00150	Bonded Fiber Matrix	10.000 ACRE	3,000.00000	30,000.00	2,930.00000	29,300.00	3,115.00000	31,150.00
216-00201	Soil Retention Blanket (Straw-Coconut) (Biodegradable Class 1)	28,000.000 SY	2.00000	56,000.00	2.15000	60,200.00	2.25000	63,000.00
240-00000	Wildlife Biologist	24.000 HOUR	120.00000	2,880.00	115.00000	2,760.00	120.00000	2,880.00
240-00010	Removal of Nests	40.000 HOUR	100.00000	4,000.00	90.00000	3,600.00	70.00000	2,800.00
240-00020	Netting	40.000 SY	20.00000	800.00	15.40000	616.00	26.75000	1,070.00
304-01000	Aggregate Base Course (Class 1)	59,888.000 TON	16.00000	958,208.00	17.60000	1,054,028.80	19.25000	1,152,844.00
304-06000	Aggregate Base Course (Class 6)	40,976.000 TON	17.00000	696,592.00	19.20000	786,739.20	20.25000	829,764.00
310-00610	Full Depth Reclamation of Hot Mix Asphalt Pavement (8-12")	66,711.000 SY	2.50000	166,777.50	0.95000	63,375.45	1.00000	66,711.00
403-00720	Hot Mix Asphalt (Patching) (Asphalt)	120.000 TON	300.00000	36,000.00	165.00000	19,800.00	225.00000	27,000.00
403-34701	Hot Mix Asphalt (Grading SX) (75)	38,824.000 TON	50.00000	1,941,200.00	59.30000	2,302,263.20	50.00000	1,941,200.00
411-03352	Asphalt Cement Performance Grade (PG 58-28)	1,533.000 TON	400.00000	613,200.00	405.00000	620,865.00	350.00000	536,550.00
411-03355	Asphalt Cement Performance Grade (PG 58-34)	795.000 TON	500.00000	397,500.00	475.00000	377,625.00	400.00000	318,000.00
411-10255	Emulsified Asphalt (Slow-Setting)	17,589.000 GAL	2.75000	48,369.75	2.25000	39,575.25	2.25000	39,575.25



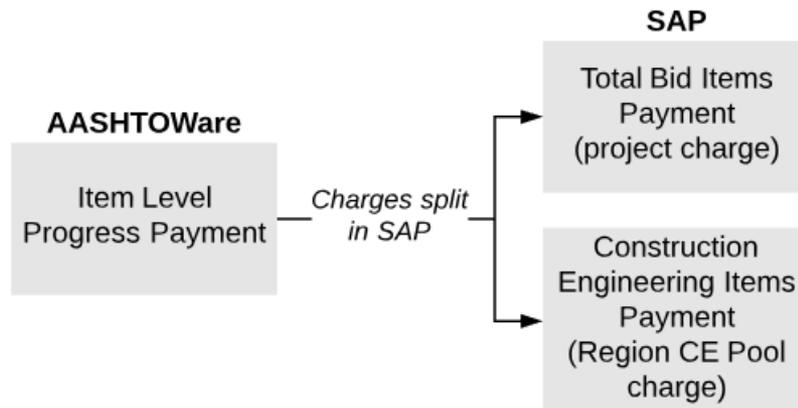
Recap: Project Financials

PROJECT ALLOTMENT	AWARD	CURRENT
[1] Award Allotment		
[2] Total Adjustments		
[3] Allotment [1+2]	130,016,871.00	
[4] Contract Bid Amount	104,131,317.37	
<i>Award</i>		
CONSTRUCTION	AWARD	CURRENT
F/A/Noxious Weed Management	10,000.00	
F/A/Rail Road License Fee	13,600.00	
F/A Roadway Smoothness Incentive	18,400.00	
F/A Partnering	25,000.00	
F/A/Public Information Services	25,000.00	
F/A Railroad Flagging	25,000.00	
F/A Erosion Control/& Landscape	25,000.00	
F/A Environmental Health & Safety Manage	45,000.00	
F/A Adjust/Utilities	50,000.00	
F/A Pavement Surface Course Maintenance	50,000.00	
F/A DRB On-Demand Committee	60,000.00	
F/A Furnish & Install Electrical Service	75,000.00	
F/A Interim Surface Repair	100,000.00	
F/A On-The-Job Trainee	128,000.00	
F/A Obtain Power from/IREA	250,000.00	
F/A/Smart Work Zone	300,000.00	
CDOT Risk Pool	400,000.00	
F/A Fuel Cost Adjustment	425,000.00	
F/A Asphalt Cement Cost Adjustment	425,000.00	
F/A Quality Incentive Payment	700,000.00	
F/A Minor Contract Revisions	1,850,000.00	
[5] Total Plan F/A - Inc MCR & anticipated CMO	5,000,000.00	



Recent Analysis Results: System Limitations - Financials

1. A combination of AASHTOWare Software and SAP is currently used to process construction contractor payments
2. AASHTOWare: Initiates contractor progress payments at the bid item level
3. SAP: Contractor payments are processed
 - a. Payments associated with majority of bid items are accounted for within SAP at the project level
 - b. A small portion of contractor payments associated with construction trailers, sanitary facilities, etc., are accounted for within SAP in a Construction Engineering Pool (CE Pool)
 - c. SAP data does not include bid item level of detail as available within AASHTOWare





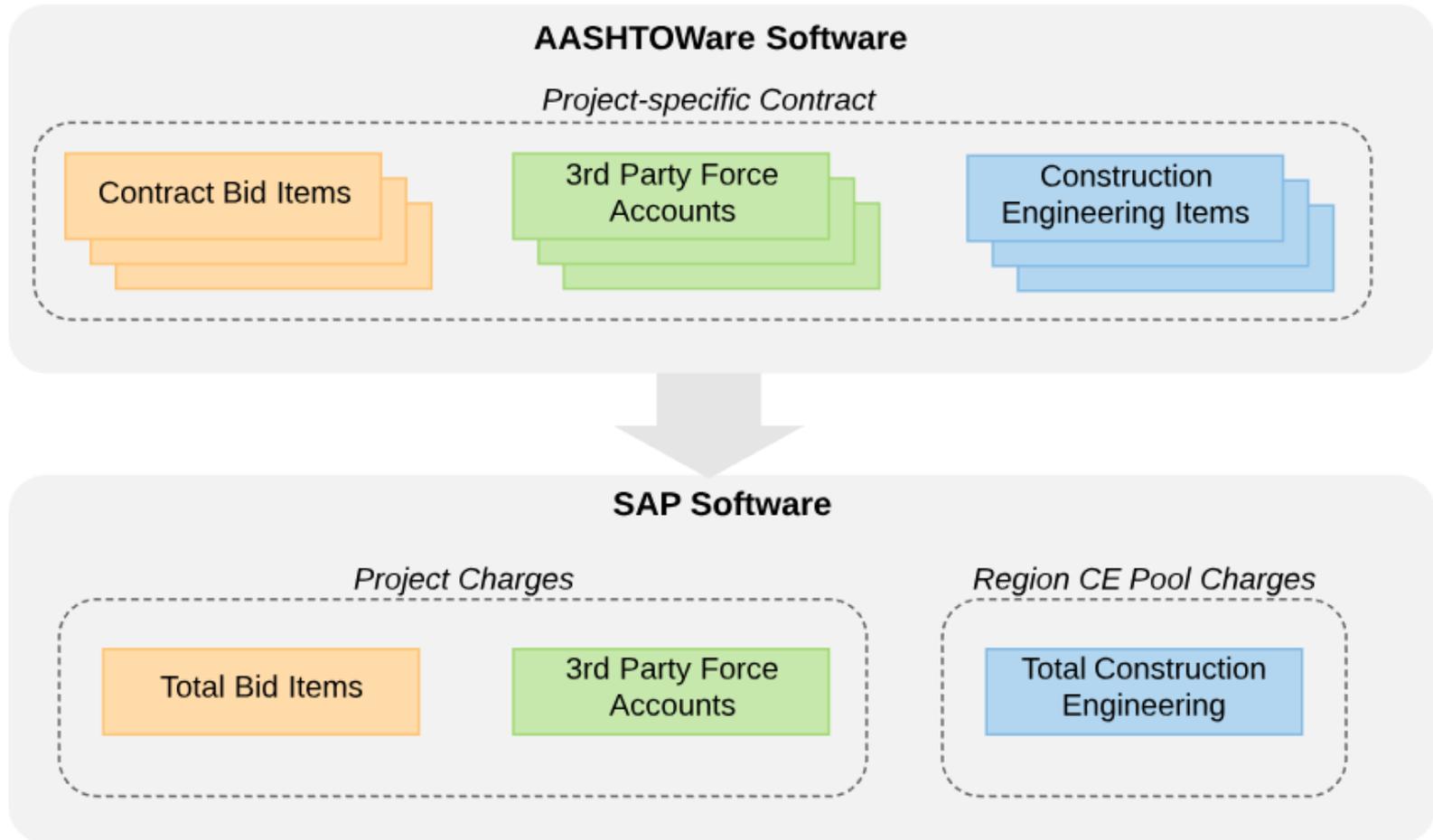
Recent Analysis Results: System Limitations - Financials

4. AASHTOWare project level data also includes force accounts paid to third parties
 - a. Used for items such as Owner Contracted Insurance Program (OCIP), utility relocations, Colorado State Patrol traffic control, etc.
 - b. AASHTOWare contractor payment data will vary from SAP project level data which indicates total construction related expenditures (including third party force accounts)





Recent Analysis Results: System Limitations - Financials



Key Takeaway: Current Software Limitations Make it Difficult to Assess and Reconcile Project and Portfolio Level Financials



Recent Analysis Results:

System/Process Limitations

1. AASHTOWare does detail force accounts by category (e.g. partnering, fuel cost adjustment, erosion control, pavement smoothness incentive, etc.)
2. AASHTOWare does not break down changes by category (e.g. owner initiated change, unforeseen conditions, and design errors and omissions)
3. Force account and change order project level data not available within SAP
4. There isn't consistently applied plan quality control
5. Recent DRBs have made interpretations of contract which was not the original intent of the DRB





Proposed Actions: Near-Term

1. Discontinue practice of paying for construction trailers, sanitary facilities, etc. using the construction engineering pool
2. Track and report of change orders by category for the CY19 construction season for a portion of the projects
3. Establish consistent plan quality control measures
4. Revisit the Dispute Resolution Specification to identify what improvements can be made





Proposed Actions: Long-Term

1. Develop future state business requirements that address system limitations
2. Select industry-leading software tool to address business requirements, configure, and deploy
 - Could be OnTrack or other software tool depending on best fit



3. Revise the current DRB specification based on best practices



Questions/Comments?

