



**Department of Administrative Services
Construction Management Services**

ISSUE

This *Issue Review* is an examination of the restructuring of the way construction projects are managed by the Department of Administrative Services (DAS) and the impact this has on project costs. This *Issue Review* does not examine the quality of the service being provided.

AFFECTED AGENCIES

Department of Administrative Services

CODE AUTHORITY

Iowa Code [chapter 8A](#)

BACKGROUND

In FY 2011, the DAS used a business case analysis to implement a change in the management of construction contracts. The DAS shifted from a “general contractor” approach of managing construction projects to a “construction manager” approach.

CONSTRUCTION PROJECTS

The Department previously used a “general contractor” approach that was administered by the Department’s Architectural and Engineering Services Section. The DAS worked with an architect to produce plans and specifications for the work to be done on a project. General contractors bid on the project by combining bids received from subcontractors, which they may or may not mark-up, and the general contractor with the lowest bid was awarded the contract. The general contractor hired subcontractors for the project or performed all or part of the work themselves.

Under the “construction manager” approach,¹ the construction manager works for the State (DAS) on a per-project contract basis. The DAS currently contracts with six construction management companies. The construction manager divides the project into separate bid packages and the State hires trade contractors directly to minimize the overhead and profit charged by a general contractor. The construction manager is involved with most projects from the beginning and this allows them to provide input during design. They are also able to provide early budget control and assist with field investigation during design to minimize unforeseen conditions and thoroughly plan the logistics of the project. Construction managers also perform constructability reviews that minimize change orders due to drawing coordination conflicts, etc. If there are too many change orders, rework orders, or delays, another construction manager may be selected for future projects. This arrangement is intended to create competition among

¹ Competitive bidding still takes place with the construction manager approach to meet statutory requirements.

construction manager contractors to keep costs down. Since the individuals or firms are contractors, they are not on the State payroll or being paid and collecting benefits between projects. The DAS staff is responsible for project contracting and overseeing the construction managers.

A review of construction documents show that a break-out of the general contractor mark-up is not provided. However, change orders show mark-ups ranging from 5.00% to 15.00%. The elimination of the mark-up by a general contractor under the new system results in a savings that can go toward actual construction costs and this savings is potentially reduced by the costs of the construction management expenses.

Under both the general contractor and construction manager approach the cost of a project could increase through additional charges for change orders, rework orders, delay claims, and other actions that generate additional charges. Change orders are typically needed for two reasons. First, something is discovered during the course of the work that was not foreseen when the contract was entered requiring a change in the contract. Examples of this include when constructing a road the current sewer is not located as the parties believed during the course of entering the contract; or construction delays by other contractors. Changes may be made to address these items. The second reason for change orders is when the owner (State) decides to go in another direction with the project. For example, during the construction of a building the owner decides they would like a different type of light fixture than what was included in the original contract. A change would be made to address this. Projects typically end up costing more than the original bid. Change orders can be anticipated on any project and may result from circumstances both within and outside the control of the owner. The number and cost of change orders can be addressed regardless of the approach used by the owner to manage projects.

HISTORICAL COSTS

The Department of Corrections (DOC) managed projects internally under the old method using general contractors and now the DAS manages new DOC projects. **Table 1** shows the total construction project costs and the type of services or products purchased by the DAS and the DOC, when relevant for the oversight of construction projects. **Table 1** does not represent the total expenditures by the DAS. Adjustments have been made to the total expenditures to include only those resources related to the construction projects controlled by the DAS. Those adjustments include the elimination of the following expenditures:

- Routine maintenance expenses that are managed by other agencies.
- Funds that are passed on to another entity.
- Relocation expenses.
- Purchase of land.

The FY 2012 and FY 2013 columns, separated by the gray bar column, in **Table 1**, **Table 2**, and **Table 3**, reflect the change to the construction management system.

	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Other Costs*	\$ 0	\$ 0	\$ 155	\$ 7	\$ 48,249	\$ 27,928	\$ 9,393	\$ 40,168	\$ 1	\$ 0
Capital-Related Costs										
Relocation Expense	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 750	\$ 1,562	\$ 0	\$ 0
Land Improvement	0	0	0	381,885	1,594,445	603,657	238,274	35,324	204,769	405,291
Utility System Improvements	3,884,417	4,094,042	335,030	18,446	1,828,043	4,578,466	3,033,413	524,358	1,335,106	3,843,450
Purchase Of Buildings	13,487				83,441	431				
Building Contract	11,438,660	5,157,252	2,459,834	4,502,071	1,783,758	4,925,161	8,209,955	4,479,867	100,544,869	43,975,857
Building Equipment Contract	248,090	1,831,584	871,065	83,573	1,847,337	3,757,367	3,965,862	1,787,257	1,483,520	1,702,983
Bldg Costs Other Than Contract	1,270,910	707,314	1,225,965	100,350	119,513	348,505	51,036	131,156	144,770	11,354
Building Improvements	6,123,677	4,686,652	4,726,980	6,577,985	13,168,240	19,558,879	30,515,239	20,507,088	10,457,920	13,196,865
Architectural & Engineering	4,219,028	2,779,370	2,640,602	3,163,358	4,834,632	5,576,817	3,885,640	2,629,924	7,221,437	13,739,655
Materials For Capital Project	2,985,949	3,270,357	16,270,228	10,842,186	5,002,827	2,354,186	350,002	117,980	222,207	36,353
Other Capital Outlay	19,391,459	17,518,051	20,369,278	13,095,792	6,042,736	3,959,433	3,886,043	4,896,626	4,613,948	6,612,992
Demolition	0	0	0	5,244	143,865	187,316	117,674	34,210	59,623	235,899
Constr Hwy, Brdgs, Right Of Way	7,401	0	0	0	1,026,229	156,962	8,500	0	0	0
Professional Fees	0	3,968	632	14,500	26,167	70,486	211,999	134,022	2,737,756	2,929,591
Subtotal	\$ 49,583,078	\$ 40,048,589	\$ 48,899,614	\$ 38,785,388	\$ 37,501,232	\$ 46,077,666	\$ 54,474,385	\$ 35,279,374	\$ 129,025,926	\$ 86,690,289
Grand Total	\$ 49,583,078	\$ 40,048,589	\$ 48,899,769	\$ 38,785,396	\$ 37,549,481	\$ 46,105,594	\$ 54,483,778	\$ 35,319,542	\$ 129,025,927	\$ 86,690,289

* Other costs include: travel, printing, communications, outside services, and reimbursements to other agencies.
** Totals may not add due to rounding.

The total amounts of funds available and expended, and the line items, fluctuate each year and the costs fluctuate with the number and size of projects each year. An example is the construction of the prison at Ft. Madison that increased the Building Contract costs, in FY 2012, as shown above.

Table 2 shows the project management costs expended by the DAS and the DOC relevant to the oversight of construction projects. Personal Services have decreased, with the change in the method used to manage construction projects.

	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Personal Services-Salaries	\$ 659,288	\$ 669,168	\$ 649,918	\$ 892,217	\$ 1,357,255	\$ 1,276,759	\$ 1,095,397	\$ 1,427,428	\$ 942,972	\$ 717,784
Reimbursement to Other Agencies	4,457	46,443	91,612	178,332	62,937	91,884	86,275	120,184	115,628	161,431
Intra-Agency Transfer	0	0	0	345,379	194,428	63,651	67,751	70,406	110,377	89,946
Intra-State Transfers	153,830	144,520	137,200	0	0	29,312	103,783	10,000	1,000	0
ITS Reimbursements	6,112	9,424	25,362	25,618	36,162	39,547	38,211	39,950	24,655	16,408
Outside Repairs/Service	42	667	0	8,112	226,129	0	0	0	12	0
Refunds-Other	0	0	0	0	0	0	150,000	66,428	0	0
Outside Services	134	12,553	8,393	34,606	15,691	7,762	2,665	8,250	12,267	66,245
Communications	11,065	9,258	11,348	21,219	24,699	21,020	12,934	13,493	9,043	10,167
IT Equipment	0	0	5,861	39,270	38,450	10,942	10,270	14,821	16,623	1,344
Professional & Scientific Services	112	0	3,137	7,283	0	7,802	0	0	5,000	94,644
Depreciation	10,696	2,160	2,160	2,435	48,877	4,750	5,700	13,112	7,360	6,760
Attorney General Reimbursements	0	3,977	19,603	19,512	12,030	3,574	3,280	3,660	3,530	10,038
Personal Travel In State	9,776	5,716	10,475	7,586	18,964	6,824	3,175	7,671	810	952
Auditor of State Reimbursements	0	3,505	9,291	12,616	13,477	5,129	5,467	5,038	6,395	6,335
State Vehicle Operation	1,970	1,946	1,997	2,570	9,467	10,388	5,903	8,059	6,336	9,340
Printing & Binding	2,652	3,792	6,054	12,553	6,546	4,823	3,230	2,025	1,146	216
Equipment	0	0	0	10,490	29,600	0	0	0	0	0
Other	16,579	17,034	10,790	17,833	32,070	7,215	5,289	4,446	10,282	37,882
Total	\$ 876,714	\$ 930,164	\$ 993,200	\$ 1,637,631	\$ 2,126,781	\$ 1,591,382	\$ 1,599,331	\$ 1,814,970	\$ 1,273,437	\$ 1,229,491

Table 2 includes FY 2013 expenditures totaling \$150,722 that the DAS believes should not be included. Those costs include \$89,814 for settlement payments made to workers whose positions were eliminated, and \$60,908 for implementation of a new web-based system for managing projects to replace a paper system. The DAS considers these one-time expenditures and not reflective of ongoing costs of operations. The Legislative Services Agency (LSA)

includes the expenditure to include all costs and did not remove any one-time expenses from any prior year. If those expenses were excluded, the percent shown for the FY 2013 project management costs as a percentage of total construction project costs in **Table 3** would be reduced to 1.24%.

Attachment A provides the total savings estimate prepared by the DAS. **Attachment B** is the DAS September 2011 Layoff Plan. The DAS estimates it will cost less to contract on an as-needed basis for administrative costs of projects than to maintain staff full time. The DAS also suggested the percentage reduction in project administration costs will vary with economies of scale. That is, a few large projects may have lower administration costs than a larger number of small projects. In evaluating savings, the DAS assumes administrative costs to be a relatively constant proportion of the total costs. However, as can be observed in **Table 2**, Personal Services-Salaries increased from \$659,000 in FY 2004 to \$1.4 million in FY 2011. This is an increase of \$738,000 (112.0%), while Total Construction Project Costs as observed in **Table 1** decreased. The DAS eliminated six full-time positions in the DAS Architectural and Engineering Services section. Contract managers replaced full-time employees and work on an as-needed basis. Total Personal Services-Salaries decreased from \$1.4 million in FY 2011, prior to the implementation of the new system, to \$718,000 in FY 2013. However, Personal Services-Salaries increased \$58,000 in FY 2013 compared to FY 2004. The LSA was not able to determine the cause for the increase in Personal Services.

The DAS has contracts with each of the construction managers. Those contracts specify the obligations of the construction managers. Under the old system, the work of a general contractor falls under the cost of the project and is not part of the project management costs.

Examples of construction manager obligations specified in the contract related to oversight that had been performed by the DAS in the past include:

- Estimates of alternative designs or material.
- Coordinate and integrate the construction schedule with services and activities of the State.
- Update the construction schedule.
- Prepare estimates for the project for review by the design professional and approval of the State.
- Revise the construction documents to the extent necessary to reflect the clarifications, assumptions, and allowances on which the construction budget is based.
- Identify potential construction problems.

Examples of construction manager obligations specified in the contract related to general contractor services that are not related to oversight that had been performed by the DAS in the past include:

- Monitor and coordinate the trade contractors.
- Develop and implement a procedure for the preparation, review, and processing of change orders.
- Based on the construction manager's on-site observations of the work and review of trade contractor payment applications, the construction manager recommends the amounts due the respective trade contractors.

The DAS staff continues to be responsible for project contracting and overseeing the construction managers.

The Project Management Costs and Construction Management Expenses are subsets of the amount shown for Project Costs.

Table 3 shows project management costs as a percentage of the total construction project costs. The details of those costs are shown in **Table 1** and **Table 2**. **Table 3** also shows the Construction Management Expenses. The Construction Management Expenses are not included in the calculation of the operating expenses as a percentage of total costs. It is not possible to determine how much of those expenses are related to oversight that had been performed by the DAS in the past, as well as the amount related to work performed by the construction manager related to general contractor services. The portion of Construction Management Expenses related to oversight increases the percentage of project management costs compared to total project costs if Construction Management Expenses are included. The Construction Management Expenses are included in the Total Project Costs.

	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Costs	\$ 49,583,078	\$ 40,048,589	\$ 48,899,769	\$ 38,785,396	\$ 37,549,481	\$ 46,105,594	\$ 54,483,778	\$ 35,319,542	\$ 129,025,927	\$ 86,690,289
Project Mgmt. Costs	876,714	930,164	993,200	1,637,631	2,126,781	1,591,382	1,599,331	1,814,970	1,273,437	1,229,491
% of Project Mgmt. Costs	1.77%	2.32%	2.03%	4.22%	5.66%	3.45%	2.94%	5.14%	0.99%	1.42%
Construction Mgmt. Expenses									\$ 2,557,710	\$ 4,761,173
% of Project Mgmt. Costs if Construction Mgmt. Expenses are Included									2.97%	6.91%

The total operating expenses as a percentage of total project costs decreased from 1.77% in FY 2004, with total costs of \$49.6 million, to 1.42% in FY 2013, with total costs of \$86.7 million. If operating costs had been maintained at 1.77%, approximately \$303,000 would have gone toward operating expenses and not towards funding the construction. However, this does not take into account the Construction Management Expenses since it is not possible to determine how much of those expenses are related to oversight that had been performed by the DAS in the past and the amount related to work performed by the construction manager related to general contractor services. If all of the Construction Management Expenses were included in the total operating expenses as a percentage of total project costs, the percentage would increase from 0.99% to 2.97% for FY 2012 and the FY 2013 percentage would increase from 1.42% to 6.91%.

BUDGET IMPACT

If the construction manager fee is the same or more than the general contractor's profit plus overhead, including the subcontractor and supplier mark-ups, there is no savings. If the fee is lower, there is a savings. However, since it is not possible to determine how much of the construction management expenses are related to oversight that had been performed by the DAS in the past and the amount related to work performed by the construction manager related to general contractor services, it is not possible to determine the cost effectiveness of the restructuring the management of construction projects by the DAS or the impact this has on project management costs. To determine which arrangement has a lower cost, two very similar projects would need to be compared side-by-side. Again, only the costs of services was examined and not the quality of the service.

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Iowa Department of Administrative Services

Service • Efficiency • Value

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DAS

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TOTAL SAVINGS SUMMARY

This is a summary of savings from operational costs, change order, and avoiding the general contractor markup as provided in previous reports. This analysis takes into account the cost of the construction management services in FY12 post re-organization:

1. Annual operating savings = \$736,022
2. Change order savings for completed projects = \$2,587,143 million
3. General contractor markup cost avoidance = \$6,671,909

Total savings is \$9,995,074 since the reorganization. This savings allows additional major maintenance projects to be completed. Note: the annual savings of \$736,022 is only included once in the above number even though this analysis spans multiple fiscal years.

Calculation of Savings1. Annual Operating Savings

$$\text{FY12 budget } (\$1,757,740) - \text{FY13 budget } (\$1,021,718) = \$736,022$$

2. Change Order Savings for Complete Projects

FY:	Total Dollars	% Change Orders	Change Order Value	Change Order %
FY09	\$ 51,940,381	3.16%	\$ 1,641,316	
FY10	\$ 59,358,973	8.98%	\$ 5,330,436	
FY11	\$ 98,618,826	10.06%	\$ 9,921,054	
	\$ 209,918,180		\$ 16,892,806	8.05%
FY12	\$ 5,354,706	2.02%	\$ 108,165	
FY13	\$ 57,965,027	5.81%	\$ 3,367,768	
FY14 (FYTD)	\$ 27,776,855	4.58%	\$ 1,272,180	
	\$ 91,096,588		\$ 4,748,113	5.21%

FY09 - FY11 Average Change Order %: 8.05%

FY12 - FY14 Average Change Order %: 5.21%

Difference: 2.84%

Savings: FY12 - FY14

$$\$91,096,588 \times .0284 = \$2,587,143$$

3. General Contractor Markup Cost Avoidance: Implementing Construction Management (CM) services contracts avoids the general contractor supervision and markup of 15%ⁱ

Total FY13 Payments	\$ 98,333,149.79
Total FY14 Payments	\$ 48,816,317.34
Total	\$147,149,467 (rounded)ⁱⁱ

<u>Breakdown of Total</u>		<u>%</u>
Design Professional	\$ 6,570,677	4.47%
Construction Manager Fees	\$ 7,446,164	5.06%
Trades Contractor Costs	\$ 80,002,415 ⁱⁱ	54.37%
Prime Contract on Phase I ICIW & ISP	\$ 52,568,828	35.72%
Printing, insurance, DAS cost, and other expenditures	\$ 561,383	0.38%

Without implementing CM services contracts, the estimated Trades Contractor costs would have been 15% higher or \$94,120,488 ($\$80,002,415 / 85\% = \$94,120,488$)

Savings realized during FY13 and FY14 with CM services contracts:

Estimated Trades Contractor Costs Prior to CM services contracts:	\$94,120,488
Actual Trades Contractor Costs using CM services contracts:	<u>\$80,002,415</u>
	Difference \$14,118,073
	Less Construction Manager Fees \$ <u>7,446,164</u>
	Estimated Savings to Date \$ 6,671,909

ⁱ RS Means is a construction industry guide for industry cost information

ⁱⁱ This number takes into account less the 15% markup

