

# iowa school construction best practices



## WHAT IS A DELIVERY METHOD?

A delivery method is a way of assigning authority and responsibility to move a project from an idea to a functioning facility.



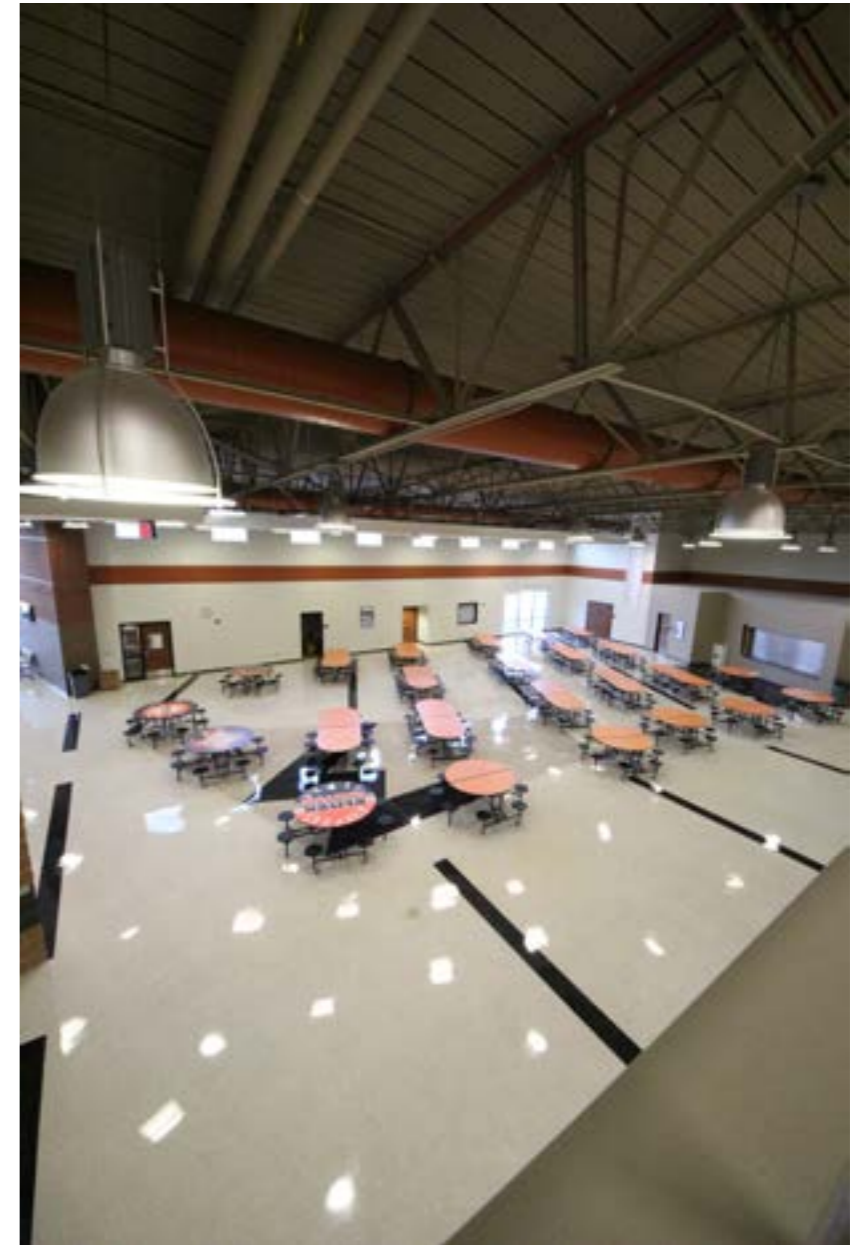
## DELIVERY EVOLVING OVER TIME

- Master builder until early 20th century
- Technology and specialization lead to design-bid-build
- Perceived corruption in public sector leads to laws
- No sharing of information or collaboration during design between design and construction professionals
- 1980's: Owners demanded alternatives to the design-bid-build method



## DELIVERY METHODS

- Design-Bid-Build
- Construction Manager Agency
- Construction Manager at Risk
- Design-Build





## IOWA LAW FOR PUBLIC ENTITIES

### NOT ALLOWED

- Design-Build
- Construction Management at Risk

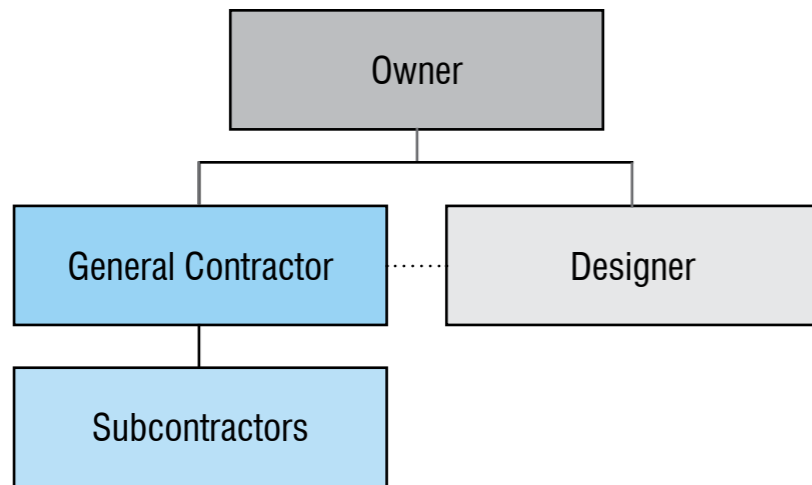
### ALLOWED

- Design-Bid-Build
- Construction Management Agency

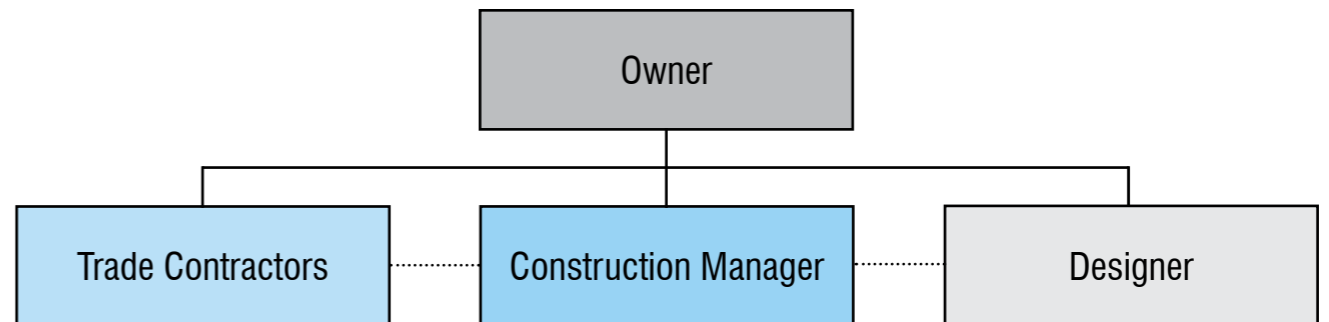


## DELIVERY METHODS

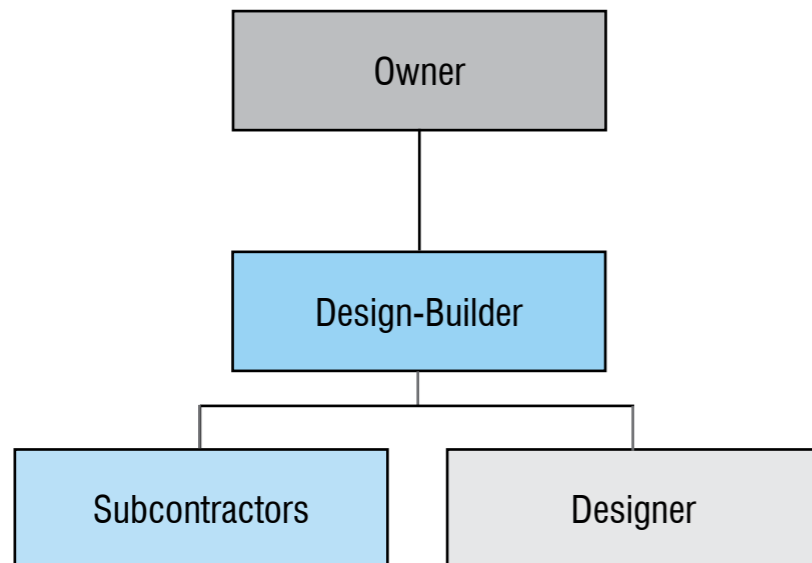
### Design-Bid-Build



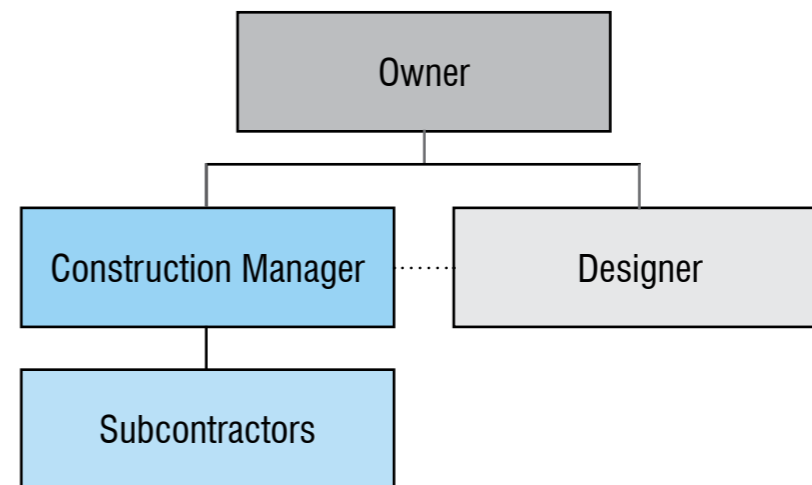
### Construction Management Agent



### Design-Build



### Construction Manager at Risk



## TYPICAL DIVISION OF PROJECT ACTIVITIES FOR PUBLIC PROJECTS

Design-Bid-Build General Contractor	Construction Manager Agent		Activity	Selection Method Available	
	Construction Manager	Trade Contractors		Qualification Based	Competitive Bidding
			Preconstruction Services		
			Program Management		
			Designer Selection		
			Develop & Manage Project Budget		
			Develop & Manage Time Schedule		
			Value Engineering Analysis		
			Constructability Review & Input		
			Develop Bid Packages		
			Solicit, Receive & Evaluate Contractor Bids & Make Recommendations		
			Construction Services		
			Project Management		
			Manage Project Budget Including Change Order Management		
			Manage Time Schedule		
			Organize & Manage Project Information Flow		
			Document Construction Process		
			General Site Safety Management		
			Review & Coordinate Trade Contractor Shop Drawings		
			Obtain Building & Occupancy Permits		
			Provide General Construction Requirements		
			General Construction Supervision		
			Direct & Coordinate Construction Activities		
			Monitor & Manage Quality of Work		
			Coordinate Independent Testing & Inspection		
			Coordinate & Manage Development of O&M Manuals and As-Built Drawings		
			Trade Supervision		
			Craft Labor		
			Purchase Materials		
			Provide Construction Equipment		

## WHAT DELIVERY METHOD IS BEST?

Metric	Design-Build vs. Design-Bid-Build	CM vs. Design-Bid-Build	Level of Certainty
Cost	6.1% lower	1.6% lower	99%
Construction Speed	12% faster	5.8% faster	89%
Delivery Speed	33.5% faster	13.3% faster	88%



## WHAT DELIVERY METHOD IS BEST?

- Collaboration results in optimal design
- Early team creation allow maximum cost influence
- Constructability reviews - less changes
- Fast track of design and construction



## WHAT WE CAN DO...

Since Design-Build is not allowed on public projects in Iowa, the goal should be to replicate the Design-Build delivery method with the Construction Management Agency process.

### Benefits

- Lower Cost
- Schedule Control
- Reduced Risk
- Maximum Local Contractor Participation



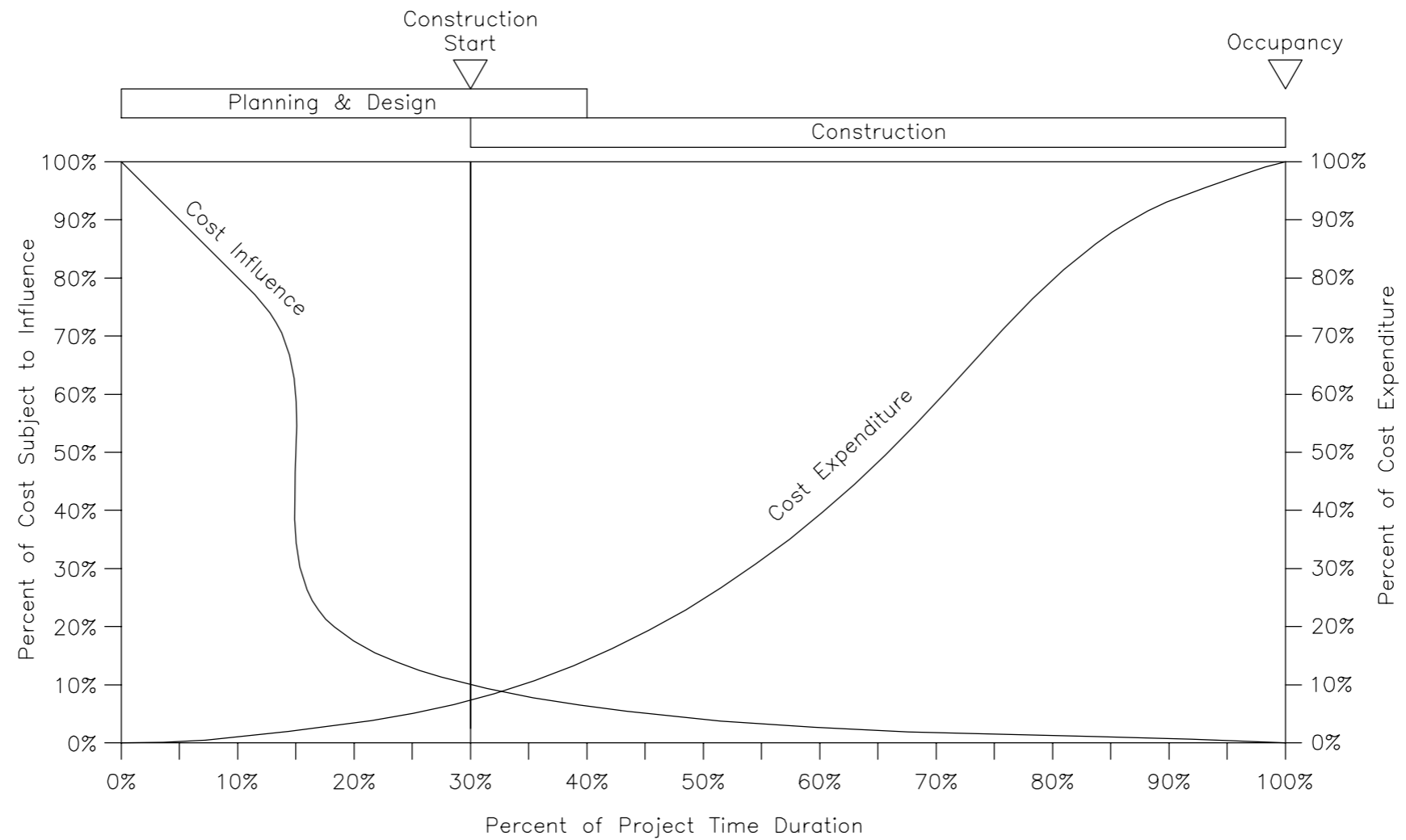
## CONSTRUCTION MANAGEMENT BENEFITS

- Lower Cost
  - Works with the designer to produce best design and construction solutions
  - Provide cost information during design process for Owner confidence in decisions
  - Constructability review during design
  - Cost savings due to design collaboration
  - Reduction in change orders



## CONSTRUCTION MANAGEMENT BENEFITS

### Pre-construction Services Impact on Project Cost





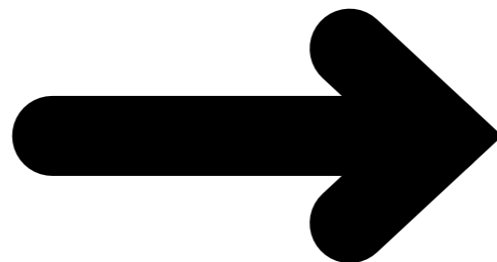
## CONSTRUCTION MANAGEMENT BENEFITS

**CAPITAL SAVINGS: \$140,000**  
**ESTIMATED OPERATIONAL SAVINGS:**  
**\$19,000 ANNUALLY**

**WATER-COOLED  
CHILLER**



**ORIGINAL DESIGN**



**AIR-COOLED  
CHILLER**

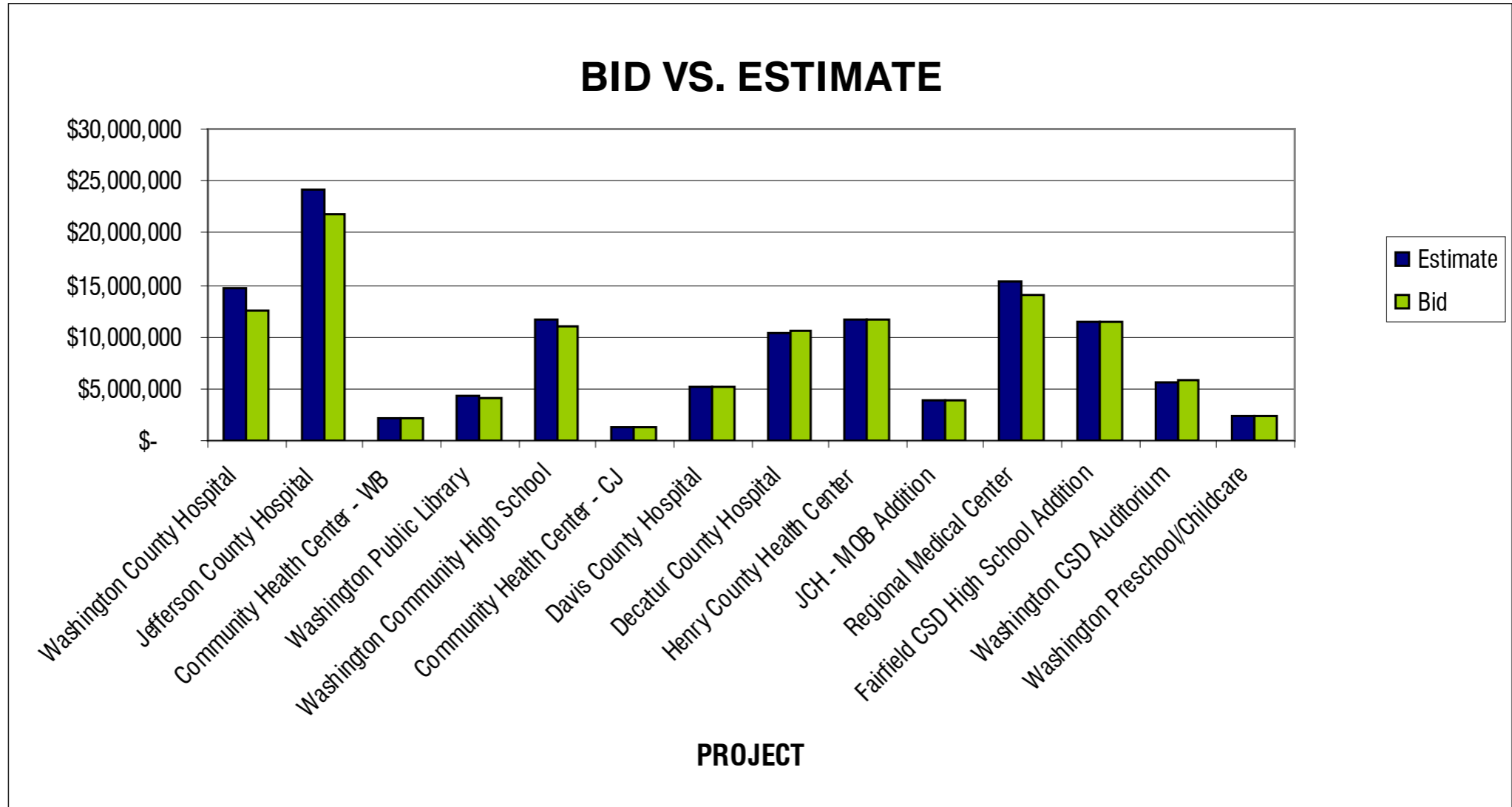


**CARL A. NELSON  
RECOMMENDATION**



**CONSTRUCTION MANAGEMENT BENEFITS**

**BUDGET VS. BID EXPERIENCE: AVERAGE 2.9% BELOW BUDGET**



## CONSTRUCTION MANAGEMENT BENEFITS

- Schedule Control
  - Overall schedule for project
    - Design
    - Owner review
    - Permitting
    - Long lead times
    - Construction
    - Building commissioning
    - Owner move-in



## CONSTRUCTION MANAGEMENT BENEFITS

- Reduce Risk
  - The best people produce the best results
    - Specific people who will manage the project
    - Track record for successful projects
    - Schedule performance, cost control, quality control
    - Partnering skills
    - Safety performance
  - The construction manager is accountable to the Owner only - no competing interest



## CONSTRUCTION MANAGEMENT BENEFITS

- Get maximum local participation
  - Tailor packages to suit local capacity and capabilities
    - Local contractors will take pride in the work
    - Will buy locally
    - Use local labor







**QUESTIONS?**





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21 Years with Carl A. Nelson & Company

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“Education is not the filling of a pail, but the lighting of a fire” - William Butler Yeats