



Western Dredging Association

Dredging Summit & Expo 2019

Waves Of Change: Oceans Of Opportunity

June 4-7, 2019 | Chicago, IL



SUCCESSFUL CONSTRUCTION MANAGEMENT

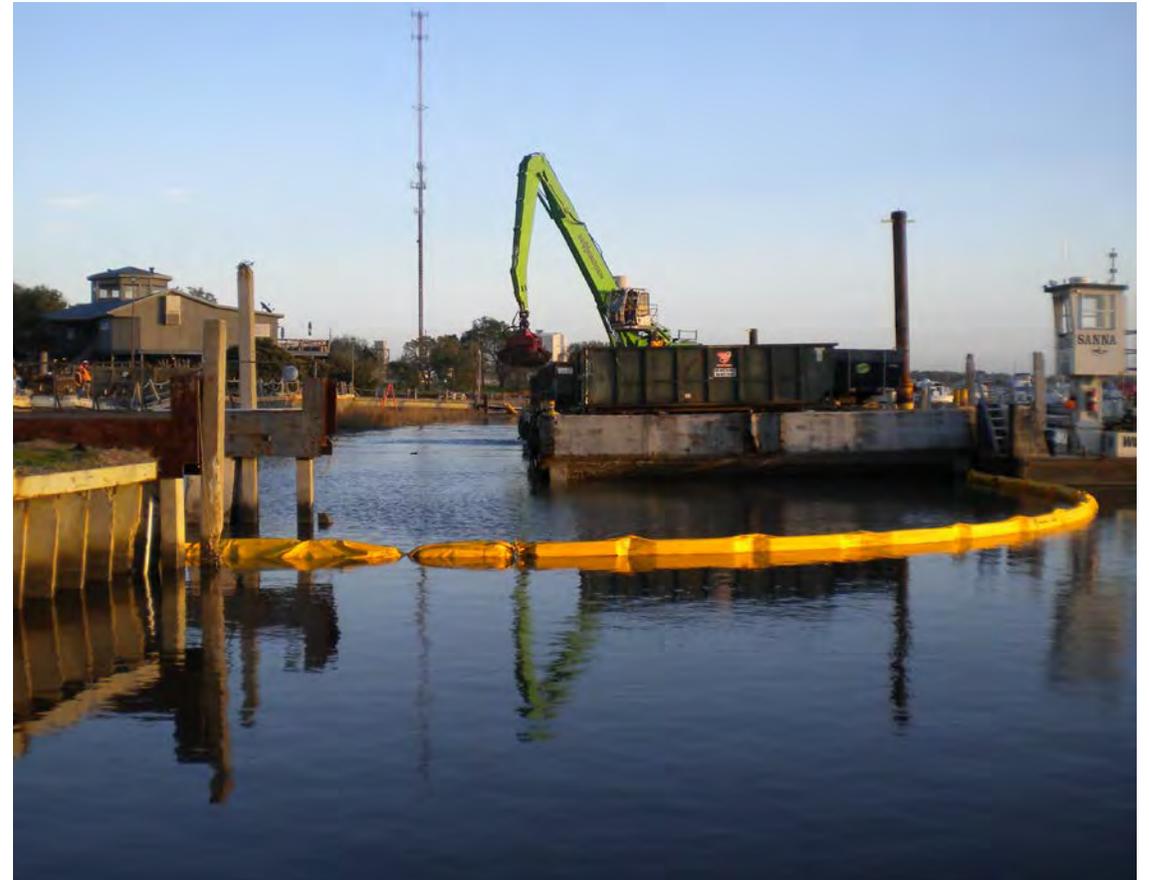
Eric Dievendorf, Shannon Dunn, Wes Thomas, and Mark Graveling

Agenda

Contracting Mechanisms

Risk Management

Construction Management



Contracting Mechanisms



- Design/Bid/Build
- Design/Build
- Alternate Project Delivery

Design/Bid/Build (DBB)

- Traditional contracting mechanism
- Bid out engineering and construction separately
- May reduce cost through competitive bidding
- Typically increases schedule for bid times
- Cost increases from delays, changes, and disputes
- Owners retain much of the risk



Design/Build (DB)

- Single source for design and construction
- Allows contractor innovation and faster reaction to changes
- Can greatly reduce schedule
- Less accurate criteria for contractor in early stages
- Shift of risk from owner to DB team but reduced owner control of design
- **Hybrid DB**
 - Bid out contractor during preliminary design



Design/Build Best Practices

- Understand benefits and limitations
- Focus selection process on qualifications
- Performance-based instead of prescriptive specs
- Use team with appropriate skills
- Allocate risk to best-suited parties
 - Existing conditions to owner
 - Design to engineer
 - Construction to contractor
- **COMMUNICATE**



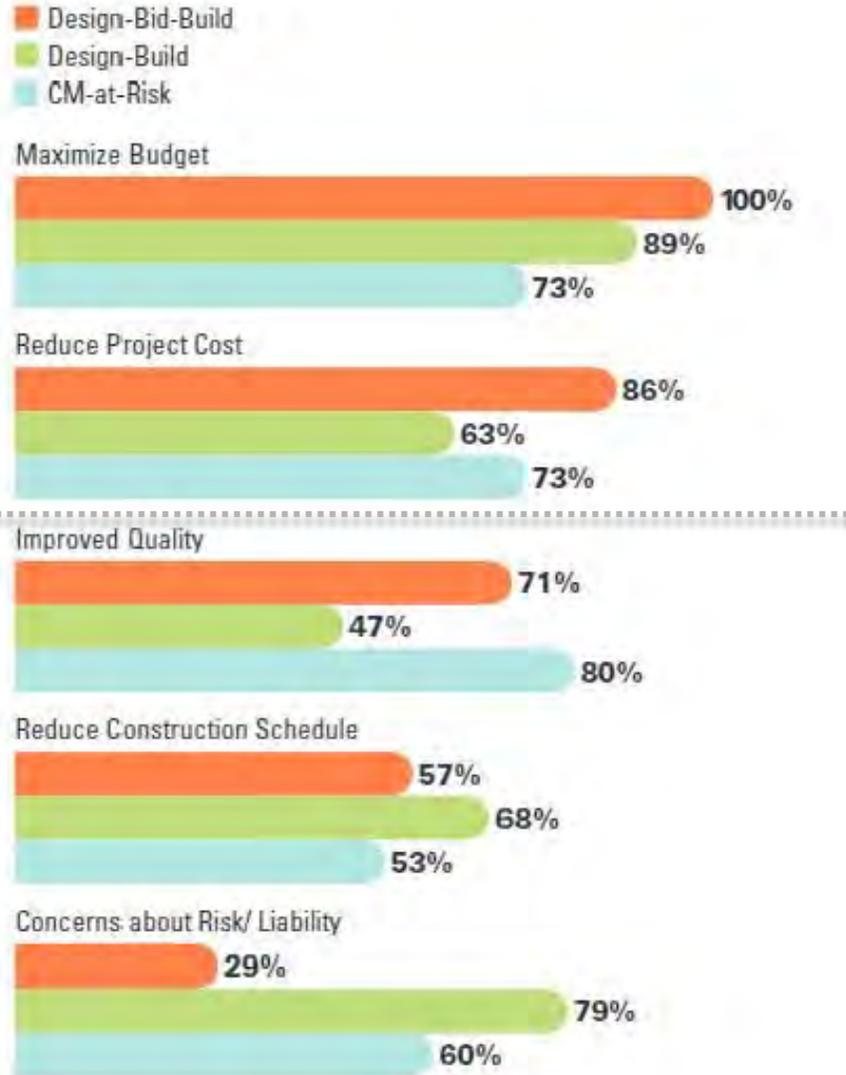
Alternative Project Delivery (APD)

- Contract between government and private sector
- Allows private sector participation in public infrastructure projects
- Share investment, risk, responsibility, and reward
- Not privatization - Government retains ownership
- Rarely done on sediment projects
- Great Lakes Legacy Act sites are not APD



Most Influential Drivers for Increased Use of Delivery Systems (According to Owners)

Source: McGraw Hill Construction, 2014



Design/Bid/Build is better here



but not here



Contracting Mechanisms

Contracting Mechanism	Schedule	Cost	Risk
Design bid build			Owner maintains risk
Design build			Significant shift of risk from owner to design build team
Alternative project delivery			Substantial shift of risk from owner to private sector

Misconceptions about Alternative Project Delivery

- The Owner assumes no risks
- On time and within budget
- No disputes



Risk Management



- Risks
- Risk Management and Assessment
- Risk Register
- Contingency
- Cost Risk Analysis

Risks



- Funding
- Design
- Interface with other Projects
- Third Party
- Agreements
- Environmental
- Weather
- Unexpected Site Conditions
(debris, utilities)
- Real Estate
- Construction
- Procurement
- Long Lead
- Inspection / Sign Off
- Legal & Regulatory
- Health & Safety
- Schedule Constraints
(fish windows, navigation coordination)

Risk Management Process

Risk management is the continuous process of identifying, assessing, analyzing, managing, and controlling the risks to the project.



Risk Assessment Process

Risk Register

Item No.	Description	Impact	Probability	Risk Level	Owner	Start	End	Status
14	Preparation for 2019 year beyond 2018. Could have 2018 and 2019 months from table.	High	High	High	ARCADIS	2018-01-01	2018-12-31	Open
15	Baseline for 2019 year beyond 2018. Could have 2018 and 2019 months from table.	High	High	High	ARCADIS	2018-01-01	2018-12-31	Open
16	Baseline for 2019 year beyond 2018. Could have 2018 and 2019 months from table.	High	High	High	ARCADIS	2018-01-01	2018-12-31	Open

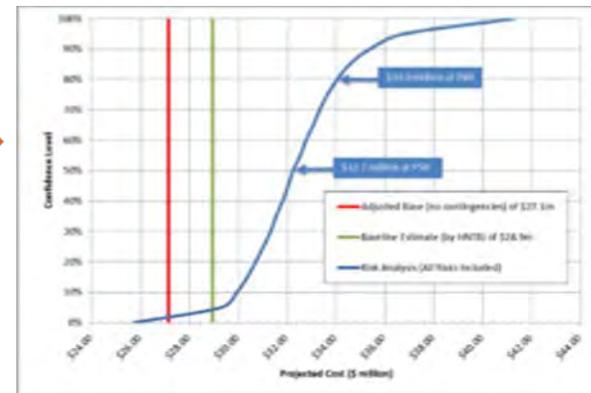
+ Baseline Budget

Item No.	Description	Start	End	Cost	Status
1	Baseline for 2019 year beyond 2018. Could have 2018 and 2019 months from table.	2018-01-01	2018-12-31	1000000	Open
2	Baseline for 2019 year beyond 2018. Could have 2018 and 2019 months from table.	2018-01-01	2018-12-31	1000000	Open
3	Baseline for 2019 year beyond 2018. Could have 2018 and 2019 months from table.	2018-01-01	2018-12-31	1000000	Open

+ Baseline Schedule

Item No.	Description	Start	End	Cost	Status
1	Baseline for 2019 year beyond 2018. Could have 2018 and 2019 months from table.	2018-01-01	2018-12-31	1000000	Open
2	Baseline for 2019 year beyond 2018. Could have 2018 and 2019 months from table.	2018-01-01	2018-12-31	1000000	Open
3	Baseline for 2019 year beyond 2018. Could have 2018 and 2019 months from table.	2018-01-01	2018-12-31	1000000	Open

Risk Analysis



- Mitigation
- Strategy
- Management
- Decisions
- Contingency

Risk Register

Risk ID	Risk Description	Probability Score	Time Impact Rating	Cost Impacting Rating	Average Risk Rating
1	Long lead delays for specialty material.	4	5	5	20
2	Contracting delayed.	5	3	2	13
3	Scope changes by regulator during construction.	3	3	3	9
4	Extreme weather events affect the site.	3	2	2	6
5	Complaints by public could result in reduced work hours, site access, etc.	1	2	1	2

Contingency

- Budgeted amount for risk/uncertainty
- Included in budgets, schedules, and risk assessments
- Often rule of thumb but can be more complicated



Construction Management



Construction Manager Roles

- Bidding
- Procurement and receipt of materials
- Execution of the work
- Schedule and budget management



Conclusion



- No silver bullet contracting method
- Evaluate and control risk
- Use CM to control uncertainty in construction

Your Presenter



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