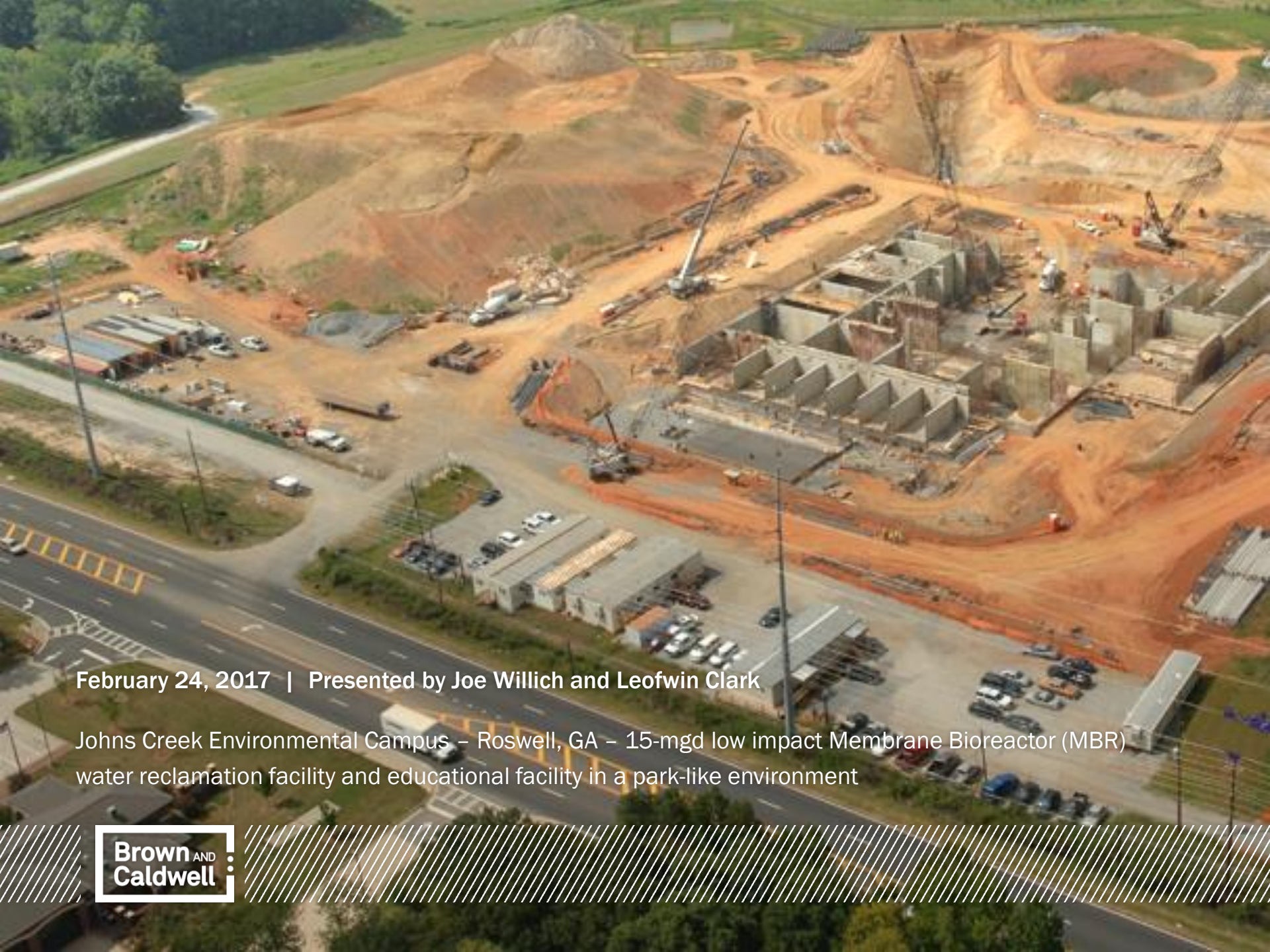
Integrated Project Delivery 101

Joe Willich, Vice-President, leads Brown and Caldwell's project development for Integrated Project Delivery in Colorado, with 32 years of experience.

Leofwin Clark, Vice-President, Brown and Caldwell, is the immediate Water Design-Build Council past President and current Education Committee Chair.



February 24, 2017 | Presented by Joe Willich and Leofwin Clark

Johns Creek Environmental Campus – Roswell, GA – 15-mgd low impact Membrane Bioreactor (MBR) water reclamation facility and educational facility in a park-like environment

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Agenda

01 Basics of Integrated Project Delivery (IPD)

02 Review the advantages and disadvantages of IPD

03 Introduce Water Design Build Council (WDBC) and Design-Build Institute of America (DBIA)

04 Questions

Discuss the basics of Integrated Project Delivery (IPD)

Section 01

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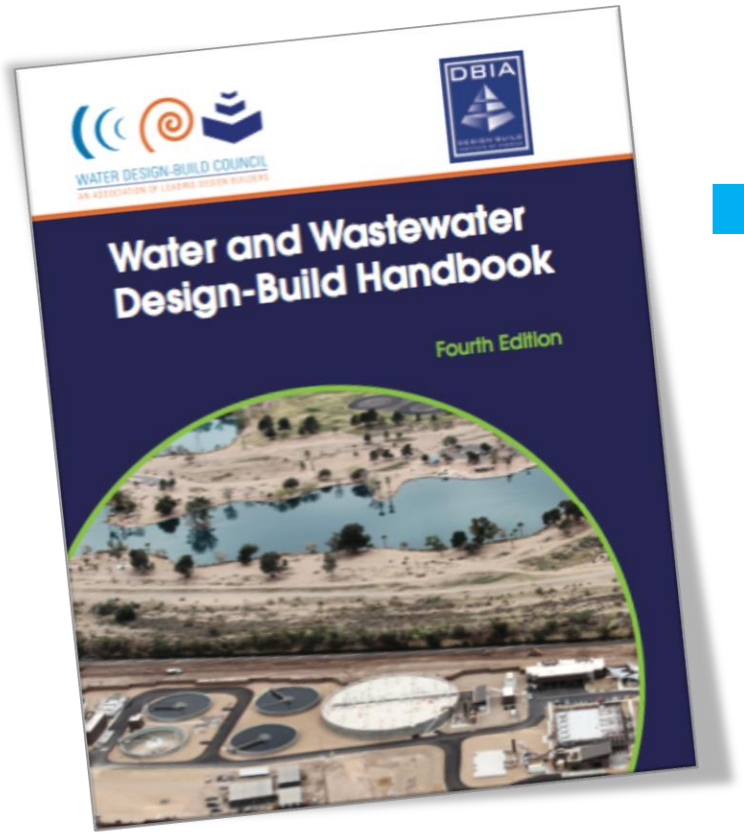
Basics of Integrated Project Delivery (IPD)

~~Alternative~~ Collaborative Delivery



Collaborative project delivery

A comprehensive term encompassing various forms of design-build (DB) project-delivery methods – including construction management at-risk (CMAR) – that fosters a cooperative relationship among the Owner, the designer, and the builder in an integrated design and construction process.

Integrated Delivery Method for Public Projects Act (COLO. REV. STAT. ANN. § 24-93-101)

"Integrated project delivery" or "IPD" means a project delivery method in which there is a contractual agreement between an agency and a single participating entity for the design, construction, alteration, operation, repair, improvement, demolition, maintenance, or financing, or any combination of these services, for a public project.

Notwithstanding any other provision of law, any agency may award an IPD contract for a public project . . . upon the determination by such agency that integrated project delivery represents a timely or cost-effective alternative for a public project. § 24-93-104

Integrated Delivery Method for Public Projects Act

....authorizes any agency of the state government to evaluate a participating entity's request for proposals ("RFP") based on qualifications and "best value"... [via] a two-stage RFP... through a[n] ..."RFQ"...(demonstrated experience, competency, capability, and capacity).... Based on these factors, the agency short lists the entities it determines to be "most qualified" and issues those entities the RFP. Proposals are evaluated based on price as well as design and technical approach, past performance and experience, project management capabilities, and craft labor capabilities, in addition to other factors determined by the agency. The agency may select the proposal that is "most advantageous" and represents the "best value" to the agency. Colorado law expressly authorizes agencies to select a proposal on a basis other than solely the lowest costs.

Basics of Integrated Project Delivery (IPD)

Spectrum of Collaborative Project Delivery Options

Traditional – Collaborative Delivery – Design-Build

Design-Bid-Build (DBB)

Construction Management at-Risk (CMAR)

Progressive Design-Build (PDB)

Fixed-Price Design-Build (FPDB)

- Owner
- Owner's Advisor
- CMAR
- Design-Builder

- Contractual Relationship
- Contractual Amendment for GMP or Lump Sum
- Contractual Amendment to Approve Construction
- Embedded Relationship

WATER DESIGN-BUILD COUNCIL
AN ASSOCIATION OF LEADING DESIGN BUILDERS

Are These Good Reasons for Design-Build?

- Schedule Acceleration
- Need for innovation/potential cost savings
- Avoiding low-bid quality or excessive change orders
- Owner interest to try an alternative execution approach
- Projects that would overload the traditional procurement system

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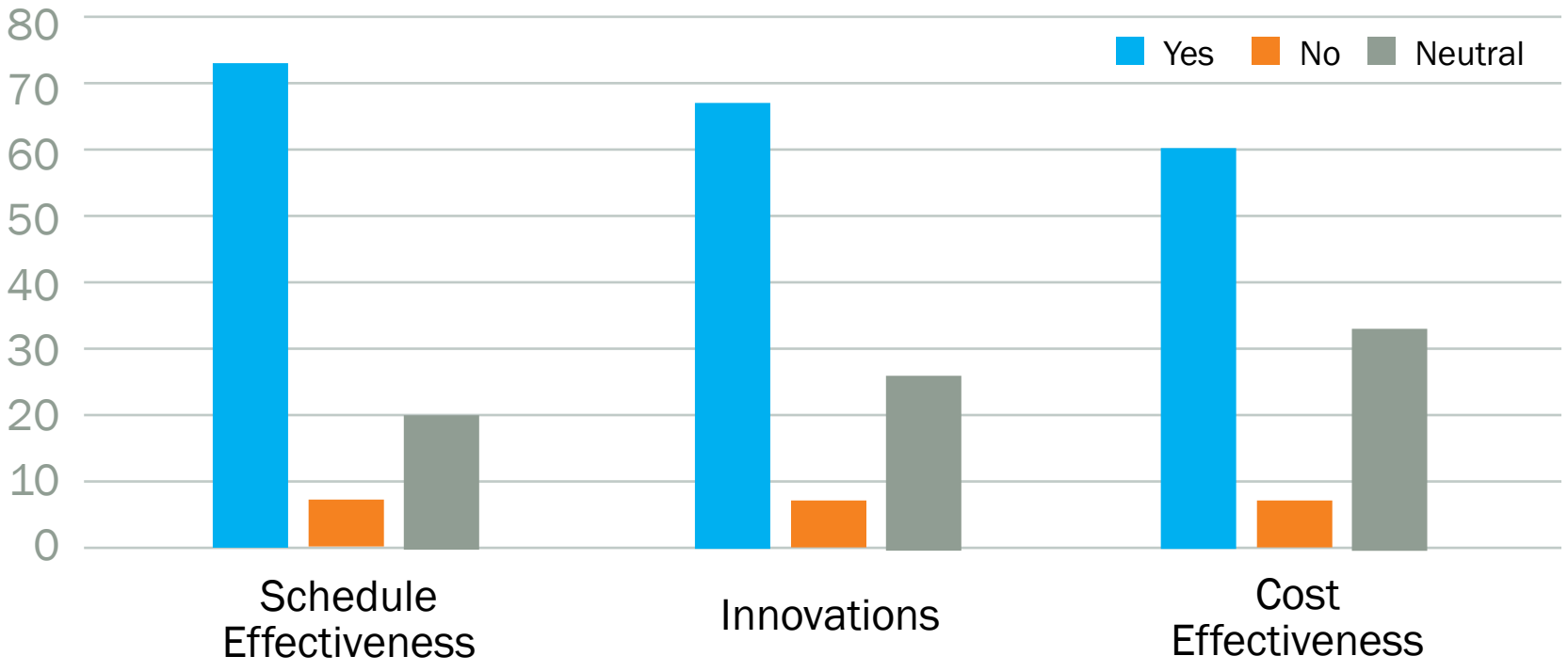
Top 3 Reasons Owners Use Design-Build

Project Managers Confirm Design-Build Benefits v. Design-Bid-Build



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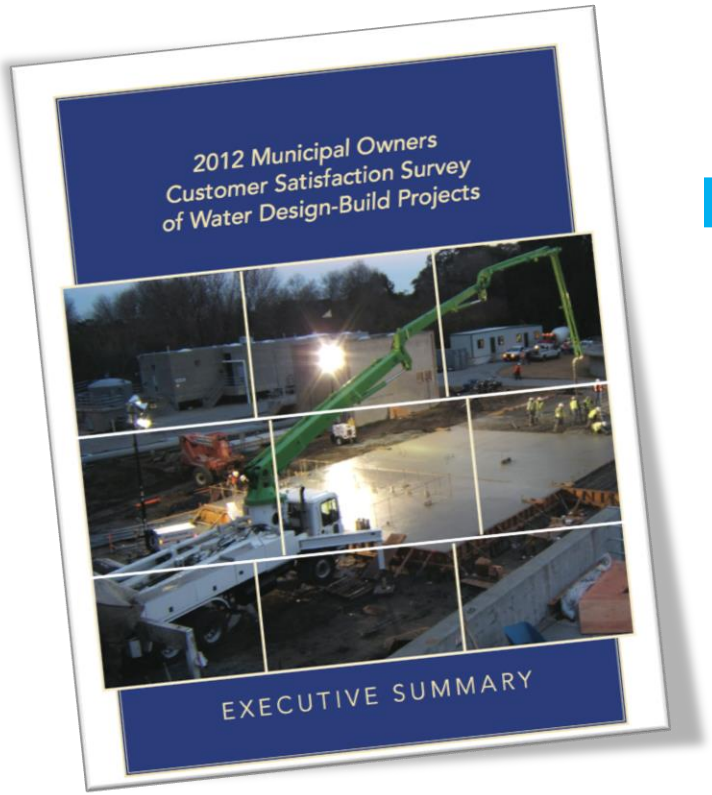
Incentivizing Innovation



	AGREE
Use method again	91%
Saved time	82%
Saved money	67%
Innovative ideas used to save money or time or to improve quality	89%
Satisfaction with the quality of projects	87%

> **Innovation and quality factors are cited as major advantages of using Design-Build and CMAR delivery.**
> ...A large majority (87%) of respondents reported being satisfied with the quality of projects built using DB and CMAR delivery. An even larger majority (89%) reported that the innovative ideas used in their projects saved money and time, and improved project quality.

Basics of Integrated Project Delivery (IPD)

Spectrum of Collaborative Project Delivery Options

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Starting Point: Design-Bid-Build

Owner
CMAR
Design-Builder
Contractual Relationship

The traditional project delivery system for Public Entities under which the Owner holds separate contracts with a Designer followed by a Contractor

- **Well established, defined, linear process that is proven to work**
- **Distinct milestones to ensure expected results**
- **Design completed before bidding**
- **Bidding completed before construction**
- **Traditional cast of participants**

Construction Management at Risk (CMAR)

Owner
CMAR
Design-Builder

Contractual Relationship
Contractual Amendment for GMP or Lump Sum
Contractual Amendment to Approve Construction
Embedded Relationship

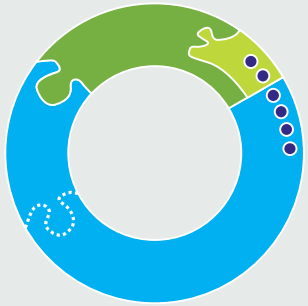
The Owner holds separate contracts with a Designer and Construction Manager hired separately to work together.

The design is done in parallel with a construction approach and estimate, followed by construction of the project for a Lump Sum or Guaranteed Maximum Price.

- **Similar to traditional delivery, but can be faster**
- **Allows traditional selection of Consulting Engineer**
- **Ongoing value engineering by Builder**
- **Two contracts with Owner**
- **Design and construction pricing in parallel**
- **Familiar cast of participants**

Spectrum of Collaborative Project Delivery Options

Traditional – Collaborative Delivery – Design-Build



Progressive Design-Build (PDB)

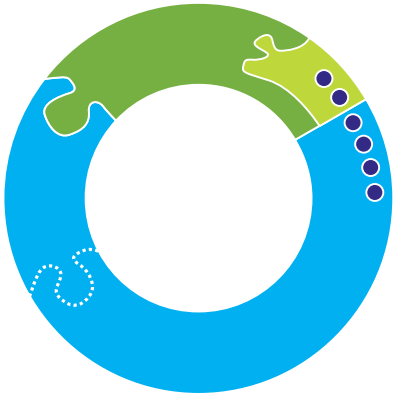
Fixed-Price Design-Build (FPDB)

A single entity or purpose-built team to deliver both Design and Construction through one contract with the Owner

- Owner
- Owner's Advisor
- Design-Builder

- Contractual Relationship
- Contractual Amendment to Approve Construction
- Embedded Relationship

Progressive Design-Build



Owner
Owner's Advisor
Design-Builder

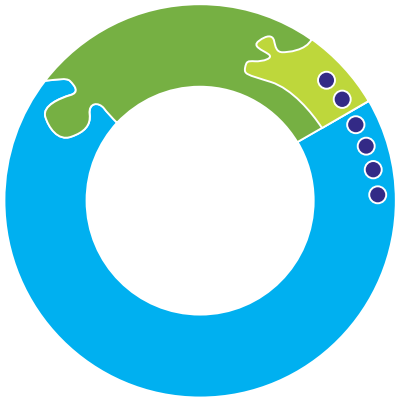
Contractual Relationship
Contractual Amendment to Approve Construction
Embedded Relationship

A single entity or purpose-built team to deliver both Design and Construction through one contract with the Owner.

Design detail and construction estimate is developed *iteratively* with the Owner.

- **Concurrent activities reduce schedule – construction can start before design is complete**
- **Selection based on qualifications and fee, not a fixed price**
- **GMP, Lump Sum conversion, and Shared Savings options**
- **"Off-ramp" to hard bid if construction pricing not acceptable**
- **New cast of participants**

Fixed Price Design-Build



Owner
Owner's Advisor
Design-Builder

Contractual Relationship

Embedded Relationship

A single entity or purpose-built team to deliver both Design and Construction through one contract with the Owner.

Design detail and construction estimate provided as part of a fixed-price proposal.

- **Many approaches – two-phase selection is common**
- **Lengthy procurement process, reduced delivery time**
- **The Proposal is essentially a "Design Competition"**
- **Can include O&M, financing**
- **Construction can start very soon after selection**
- **Various cast of participants, depending on project complexity**

Review the advantages and disadvantages of IPD

Section 02

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Owner's Survey

Top concerns managing DB projects:

- Anticipating unknowns
- Completing on budget and on schedule
- Design control
- Incomplete design-build knowledge
- Proper risk allocation

Opportunities for Risk Transfer

Proper risk allocation

- Project design
- Schedule
- Some permits and approvals
- Quantity and quality of facility output
- Cost of constructed project
- Facility performance and acceptance testing
- Lifecycle costs for O&M, repair, and replacement

Delivery Methods: Summary of Key Attributes

Design-Bid-Build (DBB)

Construction Management at-Risk (CMAR)

Progressive & Fixed-Price Design-Build

Design-Bid-Build (DBB)	Construction Management at-Risk (CMAR)	Progressive & Fixed-Price Design-Build
Traditional roles	Traditional roles at un-traditional times	New roles
Existing procurement process	Adapt existing process	New procurement process
Multiple procurements	Multiple procurements	Single procurement
Multiple contracts and separate deliverables	Multiple contracts; coordinated deliverables	Single contract; single-point responsibility
Proven and familiar, but known challenges to success	Familiar yet introduces collaboration	Proven, but not as familiar; Ensures collaboration
Predictable schedule (linear and usually longer)	Accelerated schedule; concurrent procurements	Potentially fastest delivery; Concurrent design/construct
Specification-based	Specification-based with input	Performance-based
Well-understood risk allocation (history of Change Orders)	Existing risk allocation managed with early contractor involvement	Appropriate risk transfer (performance, schedule, permits)
Owner “owns” delivery issues	Owner “owns” delivery issues, but mitigates challenges early	Design-builder takes responsibility for delivery
Owner responsible for scope and unforeseen conditions	Owner responsible for scope and unforeseen conditions	Owner responsible for scope and unforeseen conditions

Steps to Successful DB Projects

- Clearly define goals and objectives of the project
- Evaluate project cost, schedule, and risks during initial project planning and devise ways to mitigate identified risks
- Determine the delivery method that suits the specific project characteristics
- Network with other Owners who have used DB on similar projects
- Get help from independent consultants with DB experience
- Choose project members who are fully engaged and follow the organization's culture
- Select design-builder based on relevant DB qualifications

Introduce Water Design Build Council (WDBC) and Design-Build Institute of America (DBIA)

Section 03

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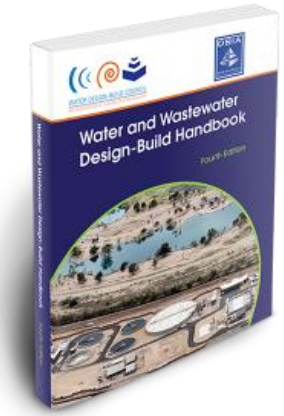
Education Resources

Abundant self-help training material is available to Owners and Practitioners interested to learn best practices for design-build project delivery

Water Design-Build Council (WDBC)



- *Municipal Water and Wastewater Design-Build Handbook (4th Edition);* go to www.waterdesignbuild.com USE BC402 for a free hard copy
- Procurement Guides for Progressive Design-Build and CMAR Projects
- Design-Build Research Reports
- One-day Collaborative Delivery Training for Owners (presented by arrangement, at cost)
- Guidelines for Best Practices Series http://waterdesignbuild.com/about-us/

Education Resources

Abundant self-help training material is available to Owners and Practitioners interested to learn best practices for design-build project delivery

Design-Build Institute of America (DBIA)

- Annual Design-Build for Water/Wastewater Conference, March 29-31, in Minneapolis
- Local Rocky Mountain Chapter
- Owner Hotline
- DBIA Certification Program
- Utility Manager Education Series
- Covers all types of projects – W/WW, road/highway, vertical, power
- Design-Build Project Awards Category
- Best Practices Guide
- Standard Contract Templates http://www.dbia.org/Pages/default.aspx

Education Resources

Abundant self-help training material is available to Owners and Practitioners interested to learn best practices for design-build project delivery

AWWA

- Design-Build for Water/Wastewater Projects (in collaboration with WDBC & DBIA)

Questions?

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