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Design Build Delivery: An Effective Alternative for Public Projects

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Educational Purpose Notification

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Design-Build Delivery



- Design Build is an alternative project delivery model where the owner contracts with a single entity responsible for the design and construction of a facility or asset.
- Unlike traditional design-bid-build, the general contractor is engaged at an early stage in the design and planning for the project
- A single point-of-responsibility is created between the owner and the design builder

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Design-Build – Benefits

- Greater efficiency
- Single point of responsibility
- Early contractor involvement in design decisions
- Reduced change orders
- Reduced multi-party litigation (finger pointing)
- Ability to conduct “best value” procurement
- Can allow for negotiation of contract terms prior to execution

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Design-Build – Threshold Issues

- Authority to utilize alternative project delivery models can be limited
- Some states require a “lowest responsible bidder” approach
- Accordingly, prior to commencing a design-build project, a public entity must determine whether it has the necessary legal authority to do so

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Design-Build – Legal Authority

- Statutory Authority
  - Independent legal authority to utilize the design-build project delivery model for this type of construction, (vertical, horizontal, utility, transportation, energy)
- Local Authority
  - Local charters, articles of incorporation, ordinances or by-laws
  - Determine the extent of the municipal authority's legal right to utilize alternative project delivery models
  - A determination must be made of which local board or executive department has authority for procurement, vendor selection, contract
  - Appropriate local authorities appoint procurement team that will perform the procurement process
- Sources of Authority
  - State law, local charters, special legislation, home-rule authority
  - Special legislation to grant a limited authority

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Design-Build – Components of Legislation



- Among other things, ideal DB legislation should expressly authorize the following:
  - RFP and selection on other than lowest bid
  - Qualifications based selection (QBS)
  - Alternative project delivery arrangements
  - Long-term agreements (DBO/DBFO/DBFOO)
  - Parallel negotiations

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Design-Build Legislation – Sample Legal Authority

- Special legislation
- M.G.L. c. 149A
  - Design-build alternative project delivery method is authorized by Chapter 149A of the General Laws (as inserted by Section 27, Chapter 193 of the Acts of 2004) for the completion of "public works" projects estimated to cost more than $5 million
  - Applicability depends on whether a project qualifies as a "public works" project

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Design-Build – MA Legal Authority

- Chapter 149A of the General Laws of Massachusetts authorizes municipalities to implement their projects through the design-build project delivery method under certain circumstances
  - Statute does not include operations
- Chapter 149A does not apply to "public building" projects; must be for a “public work” project, such as a pump station
  - A public building project is one that involves any amount of building construction
- Chapter 149A expressly authorizes prequalification of proposers

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Options for Project Delivery

- Traditional Design-Bid-Build
- Alternative Project Delivery
  - Design-Build
  - Design-Build-Operate
  - Design-Build-Finance-Operate
- Others:
  - Program Manager at Risk
  - Construction Manager at Risk

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Traditional Approach – Design-Bid-Build (DBB)

- Description
  - Public entity contracts separately with engineer to design project and contractor to construct project (decision on construction based on lowest cost bid from responsive, responsible bidder)
  - Public Owner, upon receipt of 100 percent design, typically, issues Invitation for Bids
  - Contactor Selected and put under separate contract

Alternative Approach – Design-Build (DB)

- A single entity is responsible for designing/building an improvement or new facility
  - Single source guarantor
  - Integrated design and construction services
- City does not separately retain or manage design engineer, general contractor for construction
- Performance and business risk transferred

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Potential Advantages of DB Compared to DBB

- Potential for lower cost
- Ability to select on criteria other than low cost, no issue of quality associated with accepting low bid
- Predictable future costs specified by contract (Fixed Price Guarantee for design and construction)
- Guaranteed schedule to complete construction, typically shorter
- Guaranteed performance

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Potential Advantages (reprise)

- Assumption of technical / environmental / business risks
  - Technical: achieve design/performance limits; if it breaks, company fixes it – thru acceptance
  - Environmental: if exceed permit limits, company fixes and pays fines – thru acceptance (DBO full-term)
  - Business: company assumes risk of construction costs, schedule delays

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Potential Advantages (reprise)

- Single source provider and guarantor for performance, less potential for claims, litigation
- Reduction in potential for change orders
- Fewer public management requirements – day-to-day management with company(DBO)
- National and international resource base to tap into – research, planning, trouble-shooting, training, optimization, regulatory review(DBO)

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Fundamentals of Procurement

- Delivery Method Selection
  - Traditional or Alternative Delivery
- New construction, expansion or upgrade of facilities
- Technical Team – responsible for all aspects of procurement
- Request for proposals
- Proposal evaluations
- Contract award and contract negotiations

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Request for Proposals



- Include all relevant background materials
- Provide adequate opportunity to review site
- Include clear design criteria
  - Performance specifications
  - Technical specifications
- Identify key business terms
  - Term sheet
  - Contract principles
- Draft agreement

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Request for Proposals (cont'd)

- Allow sufficient time for proposal preparation
- Evaluation should track proposal requirements
  - Qualifications
  - Technical Terms
  - Business Terms (DBO/DBFO)
- Listen to the potential proposers
  - Pre-proposal conference
  - RFP questions

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Design and Construction Responsibility – Alternative Project Delivery



- Contractor sole responsibility for design
- Owner may have design review right
  - Review, not approval
- Contractor responsible for construction means and methods
  - Prevailing wages
  - OSHA compliance

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Permit Responsibility

- Owner often in better position to obtain key permits
  - NPDES, etc.
- Contractor responsible for construction-related permits
- Contractor responsible for permit / regulatory compliance

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Project Acceptance



- Risk of acceptance on contractor
- Project performs, not just constructed
- If not operational facility, meet design requirements
  - Warranty
- Guaranteed scheduled acceptance date
- Delay liquidated damages

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Design-Build: The New Normal

- “As owners seek more streamlined delivery of their projects, they will increasingly turn to design-build, contracting with a single entity to provide integrated design and construction services. This will encourage the traditionally factional and fractional design and construction industry to find new ways of collaborating. The shift to design build will also substantially affect issues of risk management, since so many formally competitive entities will be linked by a common contractual bond. . .”-

  James P. Cramer and Scott Simpson, *The next Architect: A New Twist on the Future of Design*

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Case Studies and Opportunities

- Design-build
  - Buildings, fields, facilities, utility infrastructure
- Design-build-operate
  - Utilities, water, wastewater, solid waste and energy, ESCOs
- Design-build-finance-operate
  - Water and wastewater treatment, renewable energy, solid waste
- Design-build-finance-own-operate
  - Most of the above except governmental use buildings (schools)

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Advanced Wastewater Treatment Plant

- Background:
  - Rockland County, New York
    - Population ~ 300,000
    - Located in metropolitan New York
  - Rockland County Sewer District No. 1
    - Serves approximately two-thirds of the County
- The Problem:
  - Failing septic systems were contaminating the Ramapo River Watershed
    - Ramapo River Water Shed – sole source aquifer serving Rockland County and northern Bergen County, NJ
  - Out-of-basin transfer
    - Existing District wastewater plant could not be utilized
  - There was a need to provide sewer service to this area of the County

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Advanced Wastewater Treatment Plant

- The Solution:
  - Construction of new wastewater treatment plant
  - Environmental review process resulted in advanced wastewater treatment plant
    - Water reuse project
  - Treat wastewater to near drinking water standards
  - Recharge sole source aquifer
  - Utilize D/B/O delivery approach

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How to Implement

- Special Legislation – necessary in New York State
  - Authorized D/B/O procurement process
  - Best value procurement process – not lowest cost private operation for first five years
  - Project labor agreement
- First wastewater treatment plant D/B/O project in New York State

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Contractual Arrangement

- Veolia Water North America – Northeast LLC awarded the contract
- Guaranteed design-build performance
  - Scheduled Acceptance Date
- Guaranteed operation performance
  - Odor, effluent, electricity
- Fixed design-build price
- Fixed service fee
- Corporate guarantee – Veolia Water, S.A.
- Liquidated damages for non-performance

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Case Study – Waste-to-Fuels Project

- City of Taunton, MA
- Problem:
  - City's landfill will reach capacity between 2013 and 2015
  - City therefore needed another option to serve regional, long-term, municipal solid waste management needs
- Solution:
  - City issued RFP for private contractor to finance, permit, design, build, and operate Solid Waste Management Facility ("SWMF") utilizing emerging waste-to-fuels technologies

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Case Study – Waste-to-Fuels Project

- Technologies considered:
  - Thermal Gasification
  - Aerobic and Anaerobic Digestion
  - Hydrolysis
  - Chemical and Mechanical Processing
- Although not currently common practice, the gas produced from these technologies can be utilized to produce fuels; e.g., natural gas for insertion in the gas pipeline, compressed natural gas for fueling vehicles, hydrogen, methanol, ethanol, and biodiesel

Case Study – Waste-to-Fuels Project

- The Moratorium
  - Commonwealth moratorium on waste combustion
  - DEP has recently indicated that it will likely consider gasification technology that generates electricity on site to qualify as combustion
  - DEP agrees to permit gasification to fuels technology
  - Dynamic nature of DB procurement permits City to modify proposals from the proposers focusing on fuel production, as fuel production likely would not be subject to the moratorium

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Conclusion

- Design-build presents alternative project delivery models for public owners and projects
- Design-build may be appropriate, even, preferred delivery model for many project types
- Design-build creates a single contractual relationship, one project – one contract
- Time, schedule, budget and operational enhancements follow design-build

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