Ontario
Infrastructure Ontario

Ontario's Value Process Alternative Finance & Procurement (AFP)

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What is Infrastructure Ontario (IO)

- A Crown corporation responsible for building, managing, financing, and enhancing the value of Ontario public assets
- Supports Ontario's position as a North American leader for infrastructure delivery and innovation
- Provides value and exceptional service to its customers

The AFP Process – Process of Delivery

- A large, complex project with significant risk is identified as a candidate for the AFP process by MEDEI and the Sponsoring Ministry (MTO, MAG, MOH, MCU)
- The AFP delivery model (DBF, DBFM) is evaluated against Traditional Delivery (DBB)
- Risks are identified in a project specific Risk Workshop
- The Project undergoes a Value for Money (VfM) analysis assessing the risk cost of the DBB versus DBFM approach
- If VfM is positive, the project proceeds as an AFP procurement
- IO has a well defined procurement process (RFQ, RFP, Award) known within the Industry

The AFP Process – Process of Delivery

- For DBFM, the Project Company (PCo) has a 30 year Concession post construction to rehabilitate and maintain
- The AFP Contract includes firm commitments by PCo to a defined cost, schedule and quality performance
- Quality (QA/QC) subject to ISO 9000 process, certification of PCo
- Quality Oversight is also undertaken by the Province (as required) with payment adjustments for Quality failure
- Delivery must meet all Ontario codes, design, construction and maintenance standards
- DBFM model delivery includes significant added risk transfer associated with design life cycle cost and handback requirements

The AFP Process – Unique Aspects

- Delivery of the work considers ***Life Cycle***
  - PCo responsible for Design, Construction, Operation and Maintenance
  - Must meet Handback measures at the end of the 30 year concession
- Significant ***Risk Transfer*** to Private Sector Concessionaire
  - Design risk
  - Weather and schedule risk
  - Approvals and permitting risk
  - Utility coordination and cost risk
  - Soils, pavement and geotechnical risk
  - Construction resources and labour risk
  - Construction quality and rehabilitation cost risk
- Many of the above risks are "owned" by the Owner in Traditional Delivery (DBB)
- The AFP process provides a fertile environment for ***Innovation***

Ontario's Value Process
Alternative Finance and Procurement (AFP)

Definition of Value Analysis,

also known as ***Value Engineering (VE)***, is a systematic and function-based approach to improving the value of products, projects, or processes. ***Value Analysis*** uses a combination of creative and analytical techniques to identify alternative ways to achieve objectives.

Ontario's Value Process
Alternative Finance and Procurement (AFP)

The Value Equation

$$\text{Value} = \frac{\text{Performance}}{\text{Cost}}$$

Ontario's Value Process
Alternative Finance and Procurement (AFP)

How is the Ontario AFP Process be considered a Value Based Process?

- Must be a systemic process
- Function based analysis of requirements
- Creative process to develop alternatives
- Analytical techniques to assess options
- Must consider the Value and Performance

Must be a systemic process:

- The IO procurement process is a systemic process used to:
  - Identify projects
  - Screen projects for Value
  - Identify Qualified Proponents
  - Develop Project Specific Output Specifications (PSOS)
  - Conduct a competitive and transparent bidding process
  - Select the Preferred Proponent
- The systemic process also carries on through delivery; the design, construction, operations and maintenance phases
  - Defined design and construction oversight processes
  - Well set out process for acceptance of Work and Substantial Completion Payment
  - Ongoing processes for monitoring operation, maintenance and rehabilitation
  - Process for final acceptance at Handback

Function based analysis of requirements:

- For Buildings, the performance requirements are based on development of the Functional Program the facility
  - Address functional needs of the facility for space, use and program delivery
- Linear transportation facility functional needs are based on a reference concept design based on:
  - The Environmental Assessment process and Preliminary Engineering Design
  - In Western Canada this process is called Functional Planning
- Not a Function Based assessment as used in Value Analysis, but:
  - Functional needs are clearly addressed
  - The functional requirements are set out in the PSOS if the Contract
  - These Functional requirements are key in evaluating performance

Creative process to develop alternatives:

- The shortlist process identified three competing teams for the project
- Teams comprised of Financial, Engineering, Design and Construction experts
- Each team works to consider design and alternatives to meet the PSOS
  - A well defined PSOS sets out performance needs and avoids prescriptive measures
  - Each team needs to develop their approach based not just on the design and construction factors, but consider the maintenance and rehabilitation costs
  - From experience, each team will be creative in assessing, managing and costing the risks assigned as their responsibility
- Three separate but difference Technical Submissions will be received

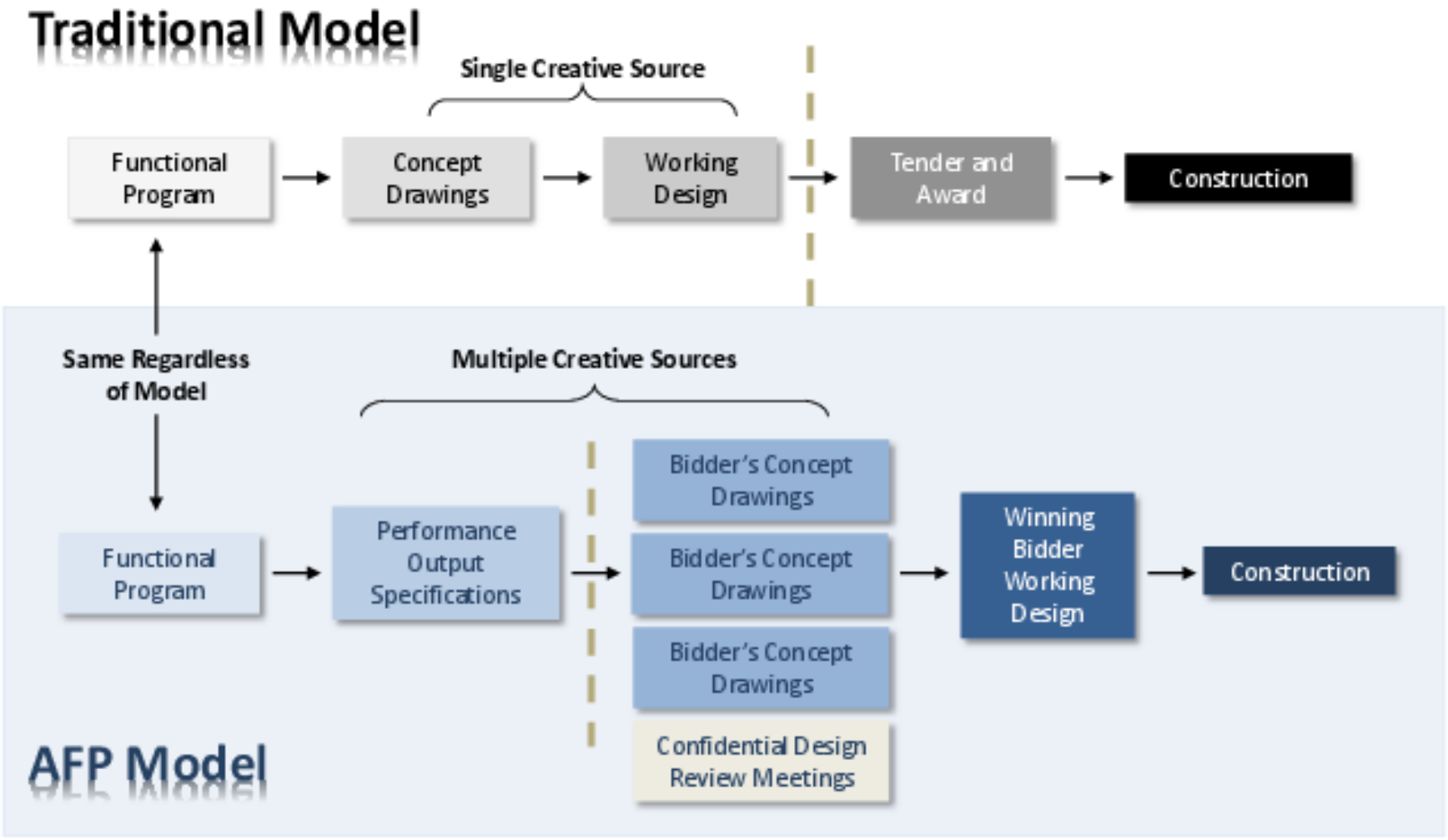
Analytical techniques to assess options:

- Permitting alternatives in the Technical Submission requires a high standard of care in analysis of the Design
  - Each submission is subject to a compliance analysis against the technical and financial submission requirements
  - The Design and the Key Areas of Performance are subject to a scored evaluation
    - As score of 70 out of 100 is required for minimum performance
    - Added scoring is assess for increased performance of the Design and other aspects of the Submission
  - Schedule is assess; completion date often set by the Proponent
  - Each submission is subject to analysis of the project financial model
    - Provision of required financial guarantees and instruments
    - Structure of Financial Model and project financing approach

Must consider Value and Performance:

- Selection of the winning Proponent based on the Value Equation
- Minimum performance Technical Score required for consideration
- Quality of the design submission is the Performance Level scored over the minimum threshold
- Cost and Value are used to select the Preferred Proponent
  - Total Score = Technical Score plus Financial Score
  - Highest Score is the Preferred Proponent
- Selection is based on Performance and Cost

The AFP Process – Value Approach



AFP Delivery

The AFP process does include the five elements of the Value Analysis approach

Although not VE, it is a Value Approach to Procurement

What are the Drivers of Value in the AFP Approach

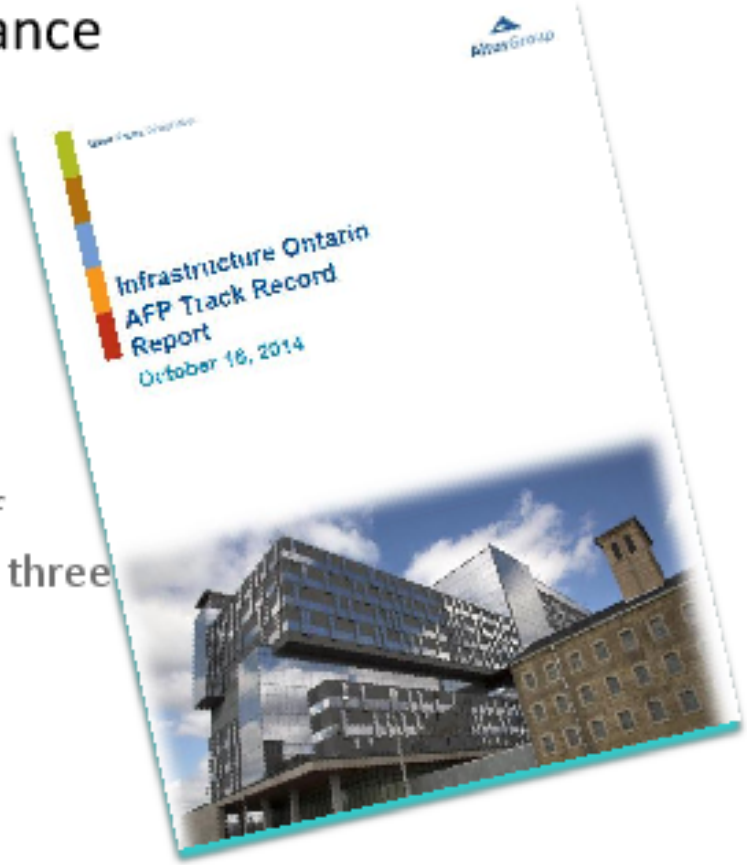
- Risk Transfer
  - AFP delivery transfers reasonable, but added, Risk in the Contract
  - With Due Diligence up front, PCo can take on and manage the risk
  - Risk drives innovation in Design and Construction (e.g. Geotechnical Risk)
- Innovation
  - Innovation is occurs both at the Bid Stage and in Project Delivery
- Design and Construction Interaction
  - Designer - Contractor interaction incubates the innovation
  - Operator involvement in Design - Construction so asset meets expectation
- Life Cycle Accountability for the Work
  - Constructed Work is the responsibility of PCo for 30 years
  - Life Cycle needs drive optimization of Capital Work with a compatible Maintenance/Rehabilitation approach

Use of Value Analysis in AFP Delivery

- Value Engineering is used in AFP Project delivery
  - Bid teams utilize the VE approach to understand the project and to develop Innovated alternatives and approaches
  - VE can be used in project scoping to identify unnecessary Functions
- IO is investigating use of VE techniques to support project oversight
  - VE processes to analyze alternative approaches, products or innovation
  - VE to support decision making

Infrastructure Ontario's AFP Track Record

- Third-party assessment of IO's performance for the first 37 AFP projects to reach substantial completion (Mid 2014):
  - 76 AFP projects totaling $39 billion in awarded contracts
  - 36 of 37 projects were completed below their established contract budget
  - 24 of 37 projects were delivered on or ahead of schedule, with six projects delayed by less than three months
- The findings of this second review are available on IO website



Right Honourable Herb Gray Parkway - Windsor

- **Cost of Contract by AFP Model:** $2.3B Risk, Construction, Finance and Life Cycle
- **Estimated Cost of Traditional Delivery:** $3.4B Construction, Lifecycle, Risk
- **Structural Work:** 14 bridge structures, 34,000m² retaining walls and 11,240m long landscaped tunnels, 1,482 precast girders
- **Financial Close:** Dec. 2010
- **Completion Date:** Substantial Completion: June 2015, Successful Proponent proposed a year shorter construction period

AFP Projects: Union Pearson Express Line

- **Cost of Contract by AFP Model:** $128.6 M Risk, Design and Construction
- **Estimated Cost of Traditional Delivery:** $193.5M Design and Construction
- **Structural Work:** Elevated rail guideway and terminus station at Toronto Pearson Terminal 1
- **Financial Close:** Dec. 15, 2011
- **Completion Date:** Substantial Completion: July 2014, Completed on schedule

AFP Projects: Highway 407 Phase 1

- **Cost of Work by AFP Model:** $2.3B Risk, Construction, Finance and Life Cycle
- **Estimated Cost of Traditional Delivery:** $3.2B Construction, Lifecycle, Risk
- **Substantial Completion:** Dec. 18, 2015
- **Structural Work:** 58 bridge structures, 26 culverts, 2 major interchanges and 9 service interchanges
- **Financial Close:** May 18, 2012

The AFP Approach – Conclusion

Demonstrated Track Record of Success

RHHGP	DBFM contract 68% of Traditional DBB
Hwy 407 Phase 1	DBFM contract 70% of Tradition DBB
Union Pearson	DBF contract 67% of Traditional DBB

AFP Project Delivery gives Cost Certainty and significantly enhances Schedule certainty

Difference in cost is (DBFM to DBB) is due to the Innovation Factor inherent in the AFP Delivery process

Thank you

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