Alternative Contracting
Ontario Ministry of Transportation

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Overview

• Alternative contract delivery models supplement current approaches
  ▫ Provide options
  ▫ Allocate appropriate risk
  ▫ Promote partnering and collaboration
  ▫ Promote innovation/alternative technical approaches
Alternative Contracting Status

Design-Build

- More than 70 DB contracts completed, active or in procurement to date
- Total project value ~ $700M
- DB Major projects
  - 2 completed
  - 6 underway

CMGC

- 5 projects to date
  - 3 in construction, 1 in design, 1 in procurement
Design-Build

Single service provider procured for both design and construction services
# DB Comparison Chart

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>DESIGN-BUILD MINOR</th>
<th>DESIGN-BUILD MAJOR</th>
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</thead>
<tbody>
<tr>
<td>Procurement Process</td>
<td>RFP</td>
<td>DB-EOI</td>
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<td>Low bid / Technically compliant</td>
<td>Short-List Proponents RFP</td>
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<td>Low bid / Technically compliant</td>
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<tr>
<td>Stipend</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>ATC (Alternative Technical Concepts)</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
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DB Trends

• # annual projects
  ▫ 7 projects in 2010/11, 15 in 2015/16

• Average project value
  ▫ $1M in 2010/11, $10M+ in 2015/16

• Program value
  ▫ $8M in 2010/11, $148M+ in 2015/16, $8M in 2010/11, $148M+ in 2015/16, $196M (actual and estimated) in 2016/17

• Measured approach was intentional
  ▫ Opportunity to understand the model
  ▫ 23 different successful contractors
Key Lessons Learned/Observations

• Choosing the right team members
• Risk transfer of design quality/accuracy
  ▫ Related change orders and claims are decreased
• Provide opportunities for innovation/alternative technical concepts
• Development and provision of DB Ready information
• Oversight during design and construction
Future of DB

• Well advanced DB model

• Leverage development of model and experience gained

• Incorporate lessons learned

• Focus on larger, more complex projects suitable for DB Major
Construction Manager General Contractor

Early involvement of contractor as part of design team
CMGC Approach

• Partnership between all parties is key to success.

• Owner
  ▫ Hires separate Design Firm and Construction Manager
  ▫ Representation of design and construction supervision staff
  ▫ Ensures early integration of the entire team

• Construction Manager
  ▫ Retained during the design phase to be a collaborative member of the design team
  ▫ Provides input on construction techniques, scheduling and costing to improve the design
CMGC Approach (cont’d)

• CMGC General Contractor
  ▫ Opportunity to provide a Target Maximum Price to complete the construction once the design is complete

• If the Owner does not accept the bid price, the contract is typically tendered as a Design-Bid-Build contract
CMGC Status/Observations

- 5 projects to date
- Collaboration is key
- Identify cost and schedule efficiencies
- Continuous constructability review
- Opportunities for innovation/alternative technical concepts
- Reduced design related change orders and claims in construction
Alternative Financing and Procurement

Made in Ontario approach to financing and procuring large, complex public infrastructure projects
AFP Model

- MTO partners with Infrastructure Ontario to deliver suitable projects with private sector expertise and financing
- Financial component encourages completion of the project on-time and on-budget
  - Payment occurs only after 50% of the capital costs have been privately financed
- Long-term concession period (typically 30 years) encourages quality in design and construction
- Suitable for large value, complex, expansion projects
AFP Status

Projects completed:
• Highway Service Centres
• Rt. Honourable Herb Gray Parkway (Windsor)
• Highway 407 East Extension – Phase 1

Projects underway:
• Highway 407 East Extension – Phase 2

Projects in procurement:
• Highway 427 Extension
Performance Specifications

Measure performance as opposed to prescribing means, methods and materials
Specification Evolution

- Up to 1940s – Method and Manufacturing Specifications
- 1940s to 1990s – Method Specifications
- 1990s to present – End-Result Specifications
- 1996 – Method-based Maintenance Contracts
- 2006 – Pavement with Warranty
- 2008 – Minimum Oversight and Design-Build
- 2009 – Performance Maintenance Contracts
Philosophy of Performance Specifications

*Measure performance as opposed to prescribing means, methods and materials*

- Next step in the evolution of specifications
- Less prescriptive – ‘what’ not ‘how’
- Performance criteria at the end of construction and during the warranty period
  - Objective, meaningful, measureable, repeatable, achievable
- Incents quality
- Focus oversight on milestone inspections
- Options for innovation
Performance Measurement

Criteria during the warranty period are indications of long term performance:

• Pavement
  ▫ Cracking
  ▫ Flushing
  ▫ Wheel track rutting
• Traffic and mobility management
  ▫ Delay times
• Culverts
  ▫ Cracking
  ▫ Settlement
  ▫ Distortion
7 Year Pavement with Warranty Specification - Background

- Developed in 2007 for DBB projects
- Modified in 2010 for DB projects
- 14 projects constructed to date with PWW spec
  - 5 DB and 9 DBB
- Additional DB projects in procurement/construction
7 Year Pavement with Warranty Specification - Observations

• Generally good performance - similar performance to an average conventionally tendered contract
• Few difficulties in terms of contract preparation, tender/award, and contract administration
• Higher bid prices, challenges with enforcing warranties
• Impacts/long term implications of Contractor pavement design are a concern
7 Year Pavement with Warranty Specification - Recommendations

• Appropriate project selection to ensure cost effectiveness and long term pavement performance
• Introduce measures to mitigate under designed pavements
• Include value for money assessment
• Introduce remedies to address deficient work
• Use objective performance metrics
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