

VALUE ENGINEERING AND ALTERNATIVE DELIVERY

CONTRACTOR'S PERSPECTIVE

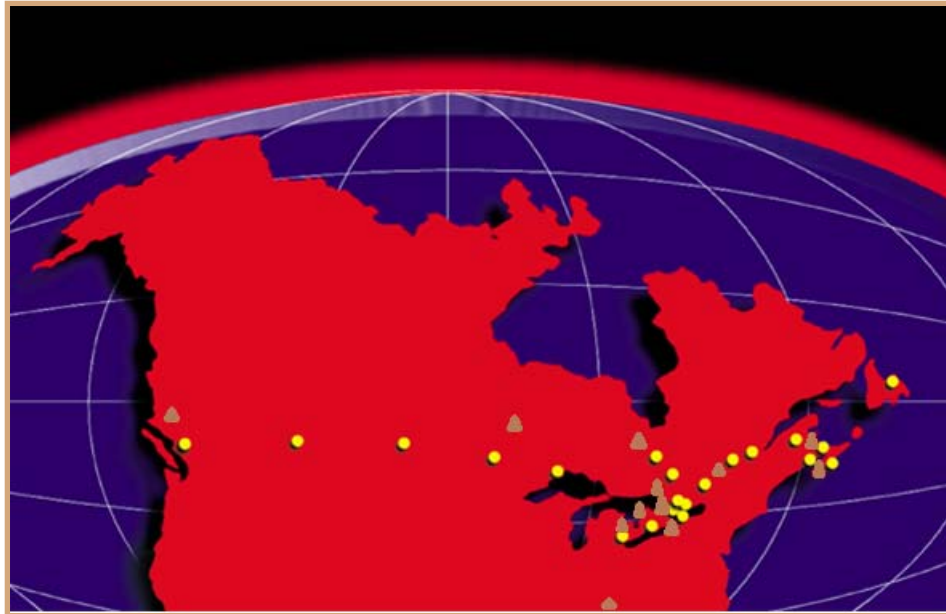
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INTRODUCTIONS

- Rob Peraita, P. Eng., G.S.C.
Vice President,
Business Development, Construction
Miller Paving Limited
- James Wildish, MBA, P. Eng.
Manager, Partnership Ventures
Dufferin Construction Company
A division of Holcim (Canada) Inc.



BACKGROUND – Miller Paving Limited



**Largest Privately Held
Canadian Construction
Contractor and
Highway Operator**

Road Preservation

Cement & Concrete

Road Construction

Aggregate Supply

Winter Maintenance

Civil Construction

Asphalt Production

Landscape Products

BACKGROUND – Miller Paving Limited

- **Public Private Partnerships**
- **Construction, Maintenance & Rehabilitation**



Fredericton to Moncton Highway



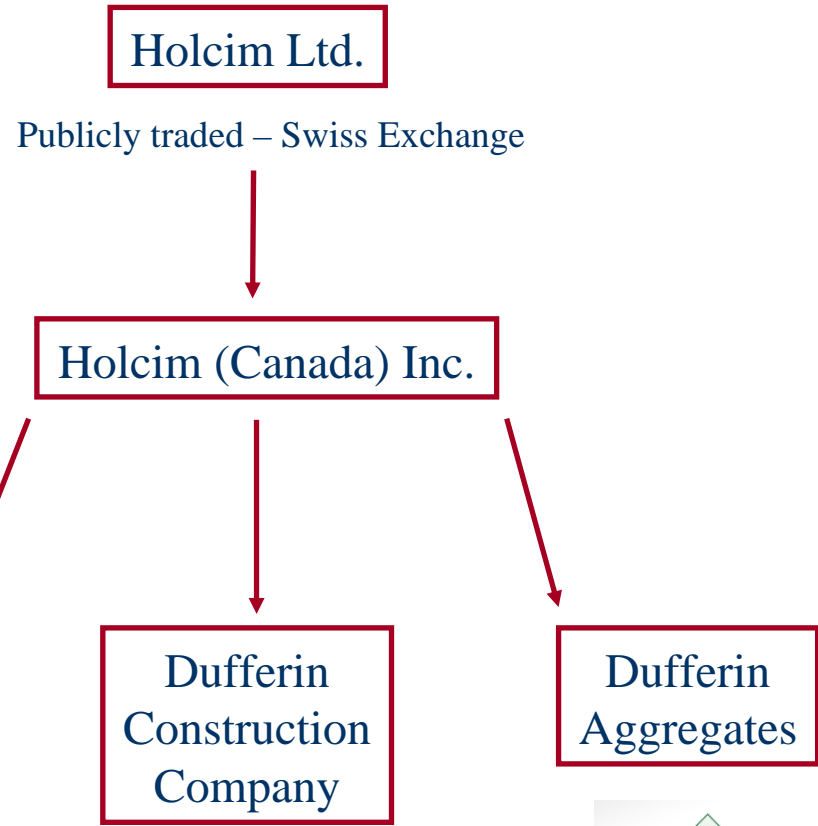
Sea to Sky Highway



Autoroute 25



DUFFERIN CONSTRUCTION a division of Holcim (Canada) Inc.



DUFFERIN-One of Canada's Largest Heavy Civil Contractors



Hwy 407



Sir Adam Beck

Calgary Airport
Development

VALUE ENGINEERING AND ALTERNATIVE DELIVERY

- Alternative Finance and Procurement
 - Risk transfer
 - Value for money
 - Reduced life cycle costs
 - Improved service
 - Integrate components of Design, Construction, Finance, Operations, and Maintenance

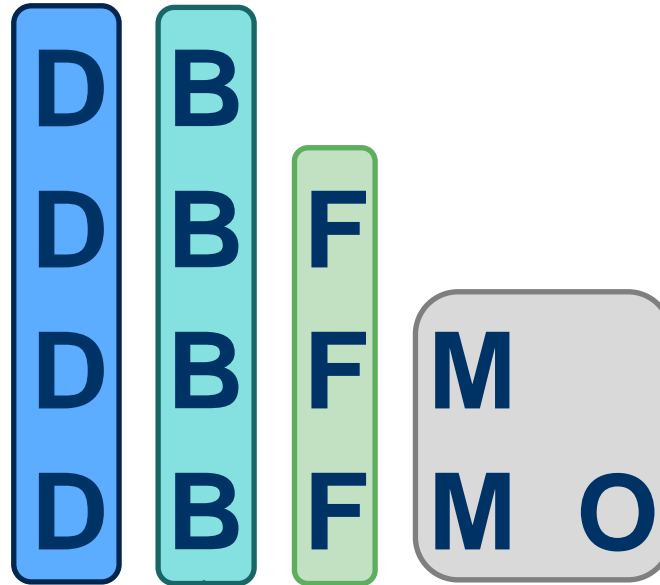
VALUE ENGINEERING AND ALTERNATIVE DELIVERY

- Current landscape in Ontario
 - First transportation AFP awarded in 2010 (WEP)
 - Airport Rail Link Spur Project (2011)
 - Promising AFP pipeline – Hon. Bob Chiarelli recently announced \$32B investments to come in transportation AFP projects

AFP MODELS

What will differentiate one bidder from the next?

Design
Build
Finance
Maintain
Operate



Contractors and project management firms have access to marketplace pricing.

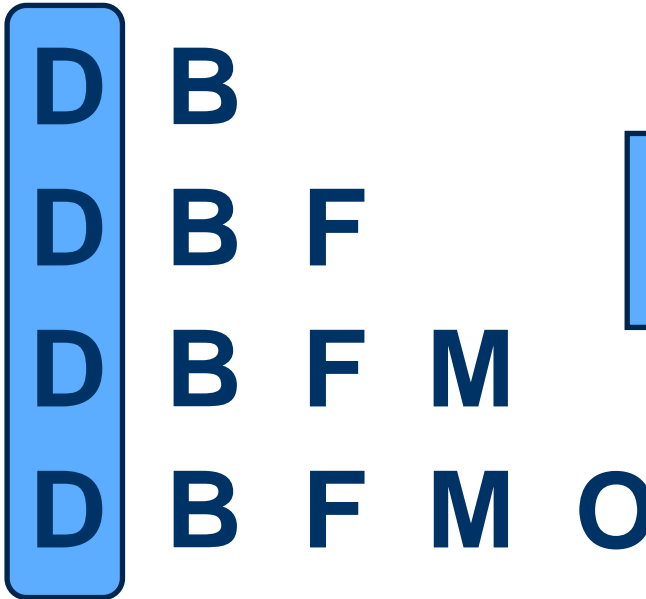
Abundance of capable firms to seek and secure competitive debt and equity solutions.

Several qualified and experienced contractors in the marketplace.

AFP MODELS

The Deciding Factor

Real opportunity to differentiate one's bid is through value engineering and innovation in DESIGN



Control over design provides control over scope.

MANAGING

SCOPE

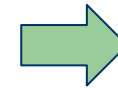
TOPICS OF DISCUSSION

- Partnering – What makes a good partner?
- Approach to Design
- Owner Interaction
- Innovation
- Assessing Risk
- Life Cycle

PARTNERING

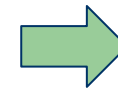
What makes a good partner?

- Size – for the project
- Teaming Ability
- Experienced
- Proven



RFQ

- Flexible / open-minded
- Risk Tolerance
- Accountable
- Responsive
- Reporting protocols, systems



RFP

APPROACH TO DESIGN

- Critical analysis of PDR
- Brainstorming
- Value Engineering
- Document Interpretation
- Iterative Design Process



APPROACH TO DESIGN

- Integration of disciplines
- Design coordinators and Design Leads
- Co-location of Project Team – collaborative, integrated approach
- Incorporate expertise / experience of Design and Construction parties



OWNER INTERACTION

Multiple Approaches taken by Owners

- Design Presentation Meetings
- Interim Submissions
- Commercially Confidential Meetings

why?

- Compliance
- Like-for-Like bids
- Proponents best interests

OWNER INTERACTION

- Design Presentations/Submissions not without CHALLENGE and RISK.
- Specifications interpretation
- Addendums
- Competitive Advantage
- Pursuit Schedule Impacts



INNOVATIONS

How is Innovation Incorporated?

- P3 or Design Build Projects generally have a mechanism to incorporate innovations
- Contractors Perspective – Seen as an opportunity to really ***“think outside the box”***
- Generally, ideas must;
 - ***“demonstrate added value or material benefit to the Sponsors”***
- Typically, innovations are classed as;
 - ***Those which propose departures from the Output Specifications***
 - ***Those which propose changes to the Project Agreement***

“Any Idea is an Innovation”



INNOVATION

Is This Process Effective?

- There needs to be an Appetite for the Sponsor to veer from the traditional approach
- There needs to be a substantial financial savings
- Sponsors are now screening potential innovations prior to being submitted
- Tendency for Proponents to shy away from submission due to fear of converting ideas into compliant requirements - eliminating proponents competitive edge
- Some Agencies request “Preferred Innovations”



ASSESSING RISK

What Risk Elements are Considered?

- Schedule
- Project Agreement
- Estimate- Labour/ Materials/Equipment
- Environmental
- Penalties
- **DESIGN**



Is the Private Industry better at assessing project Risk?

Is the Private Industry more efficient in controlling Risk?

ASSESSING RISK

What Risk Elements are Considered?

DESIGN – Largest Driver to total Risk \$

- Quantity Creep – Generally Design is limited to 30%-50%
- Interpretation of Design Parameters – *Design Function vs. Design Solution*
- Agency Approval – eg. MOE, DFO,
- Reliance on Completeness of Base Line Data – *“Readily Inferable”*
- Owners Expectation of value for money - may not always be achievable ie. Economies of scale equates to value for money.

LIFE CYCLE

VE Influence on Life Cycle



- Balance between Design and Long Term Maintenance and Rehabilitation

- Alternate Delivery provides the ability to influence the maintenance and rehabilitation costs and risks



- An area which the VE aspect has most influence
 - Output Specs are less prescriptive by Owner
 - Long period to control outcome
 - Most influence in Pavement and Bridge Design

LIFE CYCLE

VE Influence on Life Cycle

- Best value or best improvement, vs. just lowest cost (particularly lowest up-front cost, but also lifecycle cost).
- Provides a preferred or enhanced level of service, which is of interest to the client but driver for the private sector service provider is the opportunity to generate a reasonable profit.



LIFE CYCLE

VE Influence on Life Cycle

●At the simplest level, VE is design-related:

- flattening slopes, eliminates the warrants that require guiderail or other hazards, thinking from the driver's view and preventing accident potential (i.e. expectancy theory)
- designing the highway and installing end treatments that suit to protect the hazard yet lessen the cost over the life of the asset
- designing the cross section to accommodate snow storage without the need for blowing or hauling;
- permanent snow fence or snow hedge to lessen the snow that reaches the travelled surface; eliminating curb and gutter, as well as catch basins



Contact Information

- Robert Peraita
 - Robert.peraita@millergroup.ca
 - (905) 415-7331
- James Wildish
 - james.wildish@holcim.com
 - (905) 842-2741, ext. 320