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Agenda

- Introduction to PPP Canada
- P3 Fundamentals
- Value for Money
- Payment Mechanism
- Capital at Risk
- Overview of Efficiencies Study
- Overview of Efficiencies Matrix

PPP Canada – Leading the Government's P3 Agenda

- Acts as a Source of Expertise
- Advances Federal P3 Projects
- Supports Other Levels of Government

A Source of Expertise: Our Experience at Work

Since 2009, PPP Canada has helped double the number of P3s in the Canadian market by:

- Investing over $1.3 billion in projects across the country leveraging more than $6.5 billion in public infrastructure
- Reviewing 300+ project proposals for P3 suitability
- Evaluating 50+ P3 business cases
- Conducting due diligence on 20+ projects in various phases of procurement

P3 Fundamentals

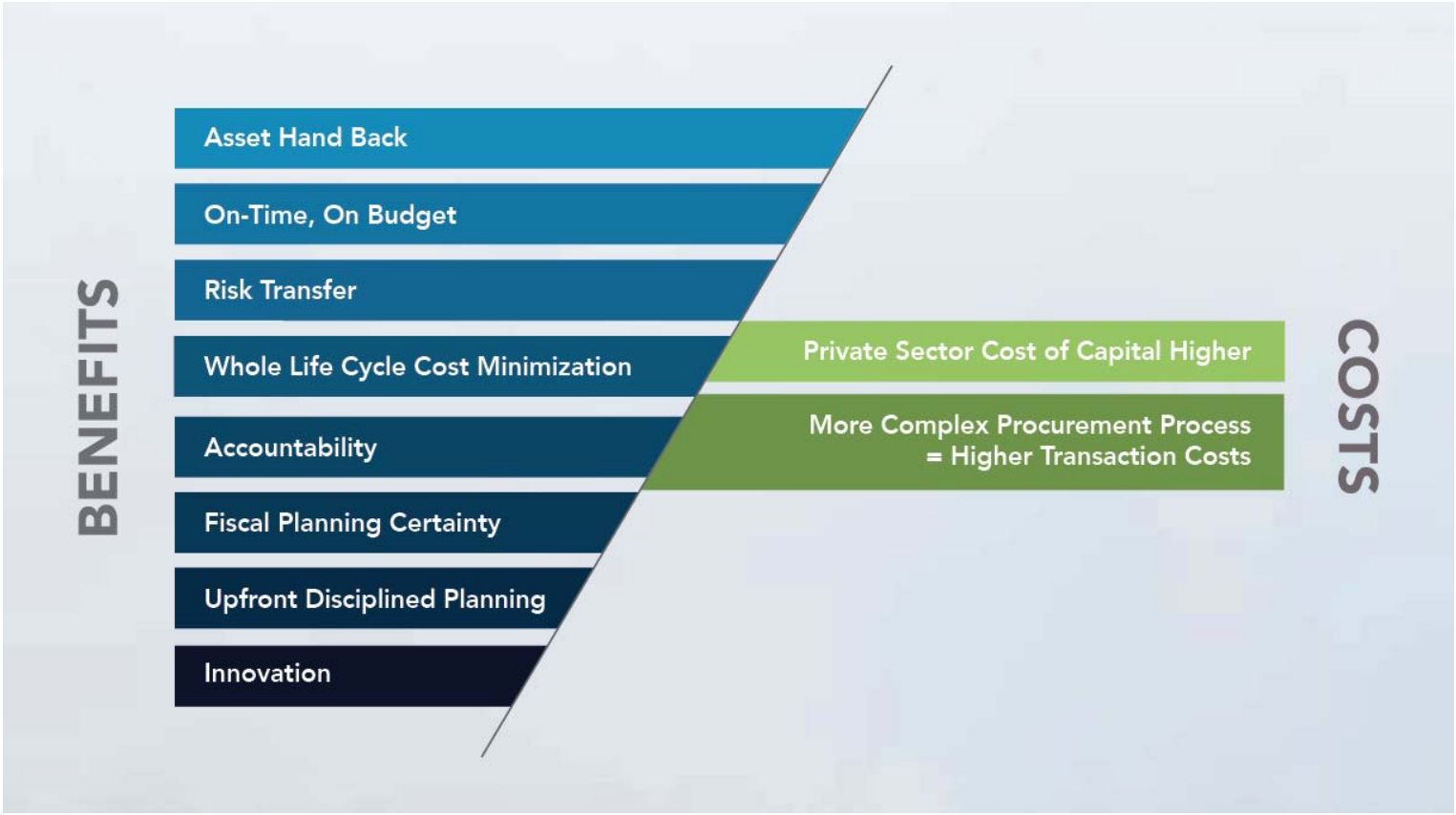
Definition

P3s are a long-term **performance-based** approach for **procuring** projects where the private sector assumes a major share of the responsibility in terms of **risk and financing** for the delivery and the performance of the asset, from design to long-term maintenance.

P3 Characteristics - Integration

- A P3 contract, or Project Agreement, typically includes a number of phases:
  - Design;
  - Build;
  - Finance;
  - Operate; and
  - Maintain.
- In our P3 contracts, the public sector retains the ownership of the asset
  - A P3 contract is not a joint venture with the private sector, a co-ownership, a divesture of an asset or a lease contract.

P3 Benefits and Costs



P3 Characteristics - Performance

Output based specifications

- The public sector includes performance specifications that define what is required rather than how it is done
  - Encourages innovation in the private sector
  - Includes powerful financial incentives and a strong monitoring regime to promote compliance through each phase of the project

- The public sector transfers risks that the private sector is best able to manage, such as:
  - Risk of cost overruns, design deficiencies, construction delay, etc.

P3 Characteristics - Financing

- Most P3s are financed by debt and equity, and rely on performance-based payments to be repaid. As a result:
  - The financiers exercise a great deal of due diligence and oversight on the project
  - The financing anchors the risk transfer to Project Co, and provides strong incentives for compliance with terms of the Project Agreement

Traditional Procurement vs. P3 Procurement

Assets	***Assets and services***
Input terms	***Output terms***
Components of delivery are *separated*	Components of delivery are ***bundled***
Paid during or in full upon construction completion	***Partially paid over the life of asset -*** linked to ***operational performance***.
Risks are mainly retained	***Risks are mainly transferred***

Infrastructure Delivery Model Spectrum

The most robust forms of P3 are those where the private sector bears financial risk throughout the project lifecycle: DBFM and DBFOM models

Will my project make a good P3?

Project Size	• Is the capital cost more than $50M?
Project Characteristics	• Is the project new construction, refurbishment of an existing asset or both? • What is the extent of integration into existing assets or services?
Asset and Service Need Duration	• Is the expected useful life of the assets(s) equal or more than 20 years?
Bundling of Contracts	• Is there potential to bundle a number of contracts for the same asset(s) into a single long-term contract?

Will my project make a good P3?

Innovation	• Could the private sector have flexibility in the design and construction of the asset(s) in order to meet output specs?
Lifecycle	• Are there significant O&M and refurbishments for the asset(s)? • Are there any factors that would limit the possibility of the private sector operating and/or maintaining the asset(s)?
Market Capacity/Interest	• Is there sufficient market capacity/interest to deliver the project as a P3? • 4-8 bid teams at RFQ stage
Design and Service Output Specifications	• Will design or service requirements change over time? • Are there any factors that could limit the public sector's ability to assess service quality?

Will my project make a good P3?

Market Precedents	• Have projects with similar requirements and of similar size and scale been delivered through the P3 model?
Legislative and Regulatory Hurdles	• Are there any legislative /regulatory constraints on the inclusion of the private sector?

Key Advisors

FINANCIAL ADVISOR

P3 Business Case Services

Undertake procurement options analysis
Prepare case studies on precedent projects
Develop the project description
Conduct market sounding
Undertake qualitative assessments
Develop procurement strategies and implementation plans
Plan and conduct risk workshops
Undertake Quantitative Risk Assessments
Conduct Value-for-Money Analysis
Advise on desired results and performance requirements

Financial / Transaction Advice

Develop the financing structure
Conduct Value-for-Money Refreshes
Prepare corporate finance / capital markets advice
Provide advice on Securities and Taxation
Provide advice on construction financing
Propose methodologies for financial submission evaluation
Evaluate financial submissions
Support activities during financial and commercial close

TECHNICAL ADVISOR

Engineering Reviews & Risk Analysis

Participate in risk workshops
Conduct due diligence on risk matrices
Review feasibility and pre-feasibility studies
Peer review approach of technical work

Technical Advice

Prepare and review schematic designs
Prepare and review technical programs
Undertake and review geotechnical analysis
Analyze technical specifications

Contribute to procurement documentation

Develop performance specifications
Develop and review environmental criteria
Identify quality management requirements

Lead technical evaluation of submissions

Perform technical compliance reviews
Assist with the resolution of technical issues
Confirm the technical feasibility of proposals
Evaluate technical submissions

Assist sponsors with project management

Participate in project sponsor committees
Audit construction progress
Review progress reports

COST ADVISOR

Prepare and review schematic cost estimates
Prepare, review and benchmark elemental cost breakdowns
Quantity surveying
Cost certification
Project budget review for capital and operating cost estimates including lifecycle expenditures
Value engineering
Peer review costing methodologies and other reports related to cost consulting work

LEGAL ADVISOR

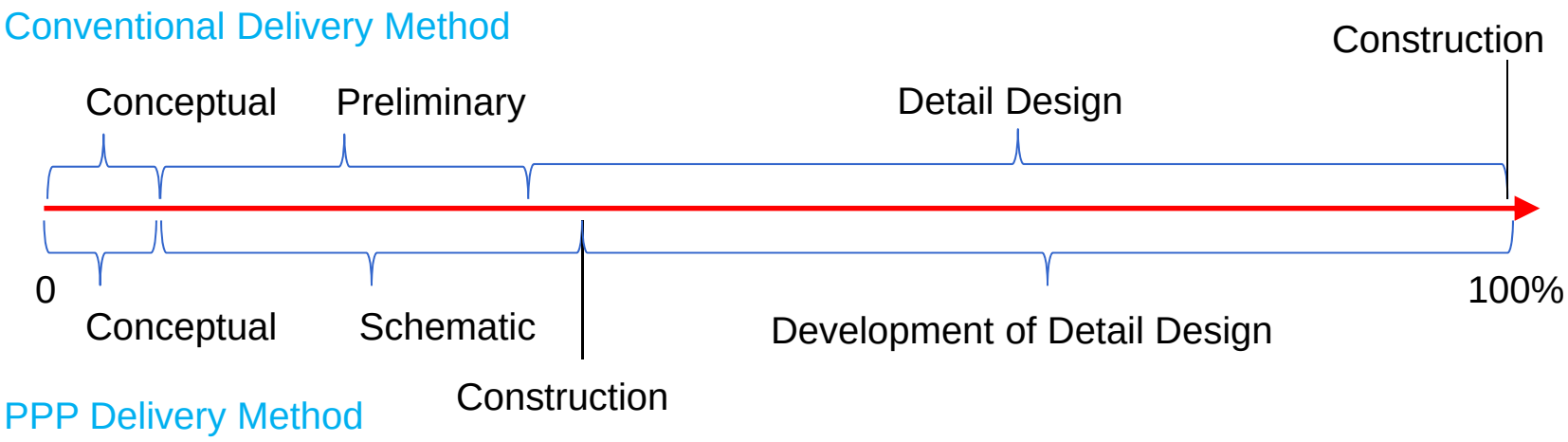
Draft/review documentation

Terms and conditions
Submission requirements
Payment mechanisms
Risk allocation
Evaluation criteria and manuals

Provide support during negotiations
Advise on submissions' compliance
Dispute resolution
Participate in meetings and provide legal advice and guidance.

Levels of Design

- Conceptual design, Class D
- Schematic design, Class C
- Design development, Class B
- Design documents, Class A



Minimum Work Required for Highways Project

ITEM	SOURCE	DOCUMENT
Schematic horizontal and vertical layout of the Highway and associated structures, including basic statistics, e.g. dimensions, number of lanes, parking, exits, overhead signs, etc. (30% complete)	Highways Designer	Drawing / Outline Brief
As-built drawings for existing Highway and structures (if applicable)	Sponsor	Drawing
Demolition drawings (if rehabilitation), including clear indication of existing materials to remain	Structural Designer	Drawing
Geotechnical and foundation system; load requirements; and, specific foundation requirements to address geotechnical issues	Geotechnical / Foundation Designer	Drawing
Highway cross sections and structures' sections	Highways Designer	Drawing
Outline specification (10% or higher), with selected materials, sizing and performance requirements	All Consultants	Report
Preliminary / existing drainage study	Hydrologist	Report
Existing utility location	Consultant	Drawing
Electrical requirements	Electrical Designer	Outline Brief
Environmental study	Consultant	Report

Elemental Cost Analysis

Background

- Recognized by CIQS

Purpose

- Monitor and control costs during design

Elements selection

Contingency

Project
Location
Owner
Consultant : **TBT**

ELEMENTAL COST SUMMARY

Report date : 7 May 2015
Page No. : F - 1
Bldg Type : 121
C.T. Index : 0.0
GFA : 161,356 m2

Element	Ratio to GFA	Elemental Cost Quantity	Elemental Cost Unit rate	Elemental Amount Sub-Total	Elemental Amount Total	Rate per m2 Sub-Total	Rate per m2 Total	%
A SUBSTRUCTURE		161,356 m2			5,481,125		33.97	1.1
A10 PIERS					0		0.00	0.0
101 Foundations				0		0.00		
102 Walls				0		0.00		
103 Columns				0		0.00		
104 Cap Beams				0		0.00		
A20 TOWERS					5,481,125		33.97	1.1
201 Foundations				0		0.00		
202 Walls				0		0.00		
203 Columns	0.000	1 Sum	513,750.00	513,750		3.18		
204 Cap Beams	0.000	1 Sum	4,967,375.00	4,967,375		30.79		
A30 ABUTMENTS					0		0.00	0.0
301 Foundations				0		0.00		
302 Stems				0		0.00		
303 Wing Walls				0		0.00		
A40 OTHER SUPPORTS					0		0.00	0.0
401 Thrust Blocks				0		0.00		
402 Anchorages				0		0.00		
B SUPERSTRUCTURE		161,356 m2			376,603,090		2,333.99	72.5
B10 SHORT SPAN ASSEMBLIES					0		0.00	0.0
101 Flexural Members				0		0.00		
102 Diaphragms	0.000	1 Sum	0.00	0		0.00		
103 Bracing				0		0.00		
104 Bearings	0.000	1 Sum	0.00	0		0.00		

Typical P3 Process Milestones

- Conceptual Design
- Approvals
- Hiring Advisors
- Developing Design and Cost Estimate
- Market Sounding Interviews
- Risk Workshop
- Value Engineering Workshop
- Efficiency Workshop
- RFQ
- RFP
- Commercially Confidential Meetings
- Selecting a Preferred Proponent
- Awarding

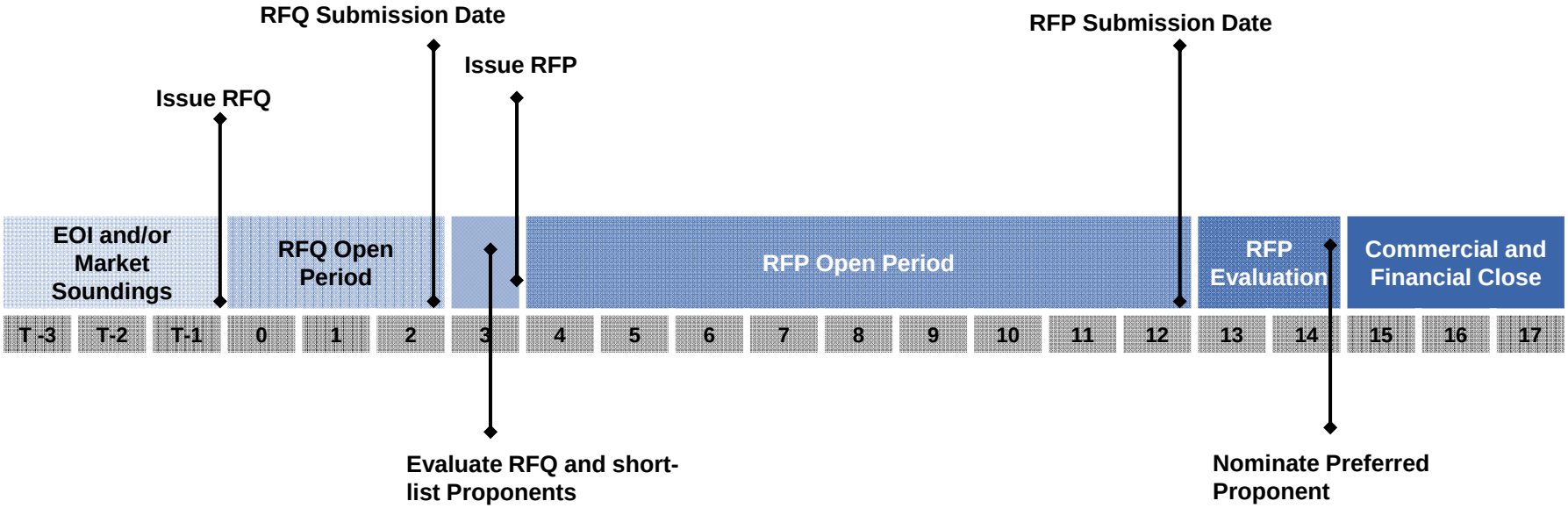
Initiation

Development

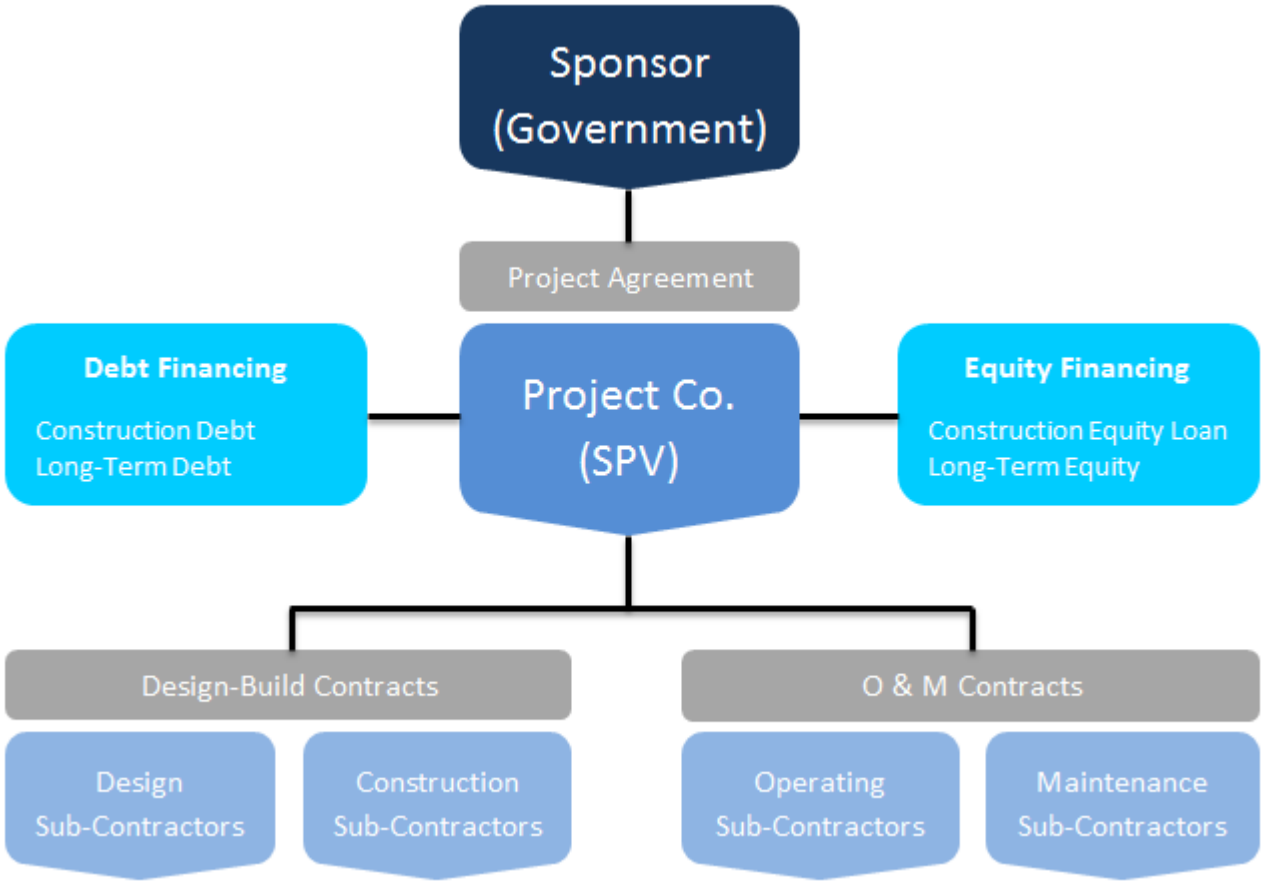
Procurement

Procurement Timeline

Procurement Stage	Typical Length of Time
RFQ	1.5 to 3 months open period
RFQ Evaluation	1 month
RFP	7 to 11 months open period
RFP Evaluation	1-2 months
Time between Nomination of Preferred Proponent and Financial Close	2 to 4 months



Project Team Chart



Value for Money

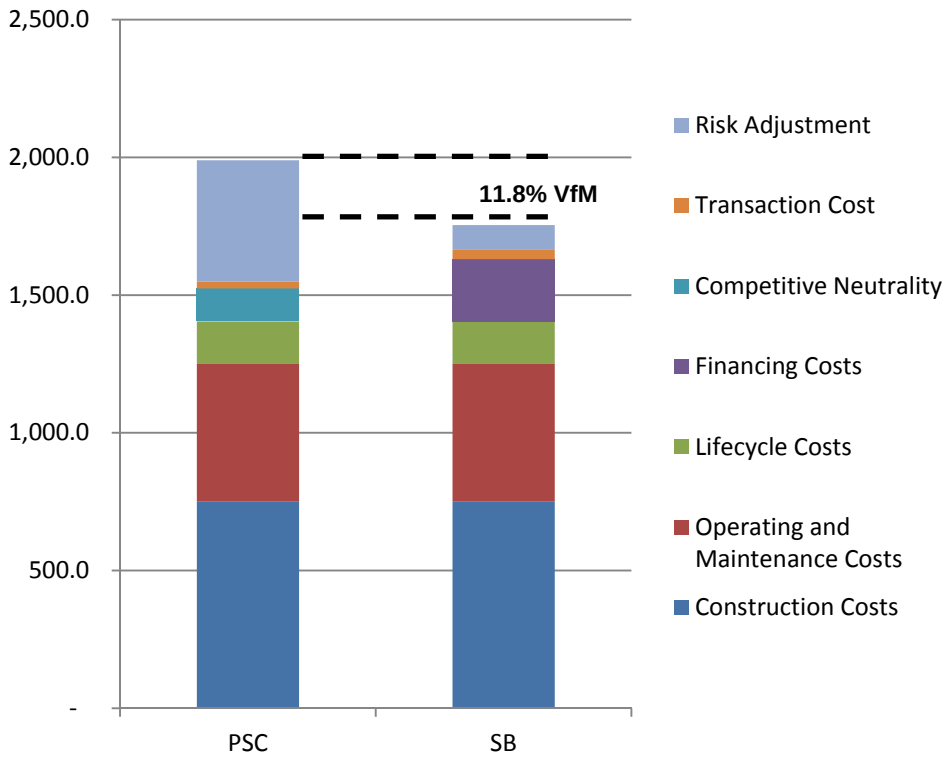
Value for Money (VFM)

Value for money compares the cost of traditional procurement vs. the cost of P3 procurement taking into consideration:

- Whole-of-life costs: total cost of ownership over the life of the asset
- Risk: total cost of risk retained by the public sector
- Discounting: present value of costs over the life of the asset

Value for Money

- Construction Costs
- Operations and Maintenance Costs
- Lifecycle Costs
- Financing Costs
- Competitive Neutrality
- Transaction Costs
- Risk Adjustment



Risk Adjustment

- Most jurisdictions have developed standard risk matrices for public infrastructure projects (50-100 common risks)
- Risk workshops are typically used to identify which risks apply to a given project
- Risk workshops or research on historic projects are used to estimate the likelihood that risks will occur and their impacts under different procurement options
- Transferred and Retained Risks are modeled through a Monte Carlo simulation
- Typically the total amount of estimated risk is lower under a P3, reflecting a better allocation of risk between public and private sector

Risk Transfer Comparison

Project Risks	Traditional		P3	
	Public Sector	Private Sector	Public Sector	Private Sector
Approvals and Permits				
Land use approvals	✓		✓	
Environmental permits	✓			✓
Development and Design				
Design Error	✓			✓
Design Omissions	✓			✓
Unforeseen site conditions	✓		✓	✓
Construction				
Cost Overruns	✓			✓
Schedule Overruns	✓	✓		✓
Material inflation	✓	✓		✓
Labour disputes	✓			✓
Operations, Maintenance and Lifecycle				
Increased maintenance costs	✓			✓
Changes in legislation	✓		✓	
Asset residual value	✓			✓

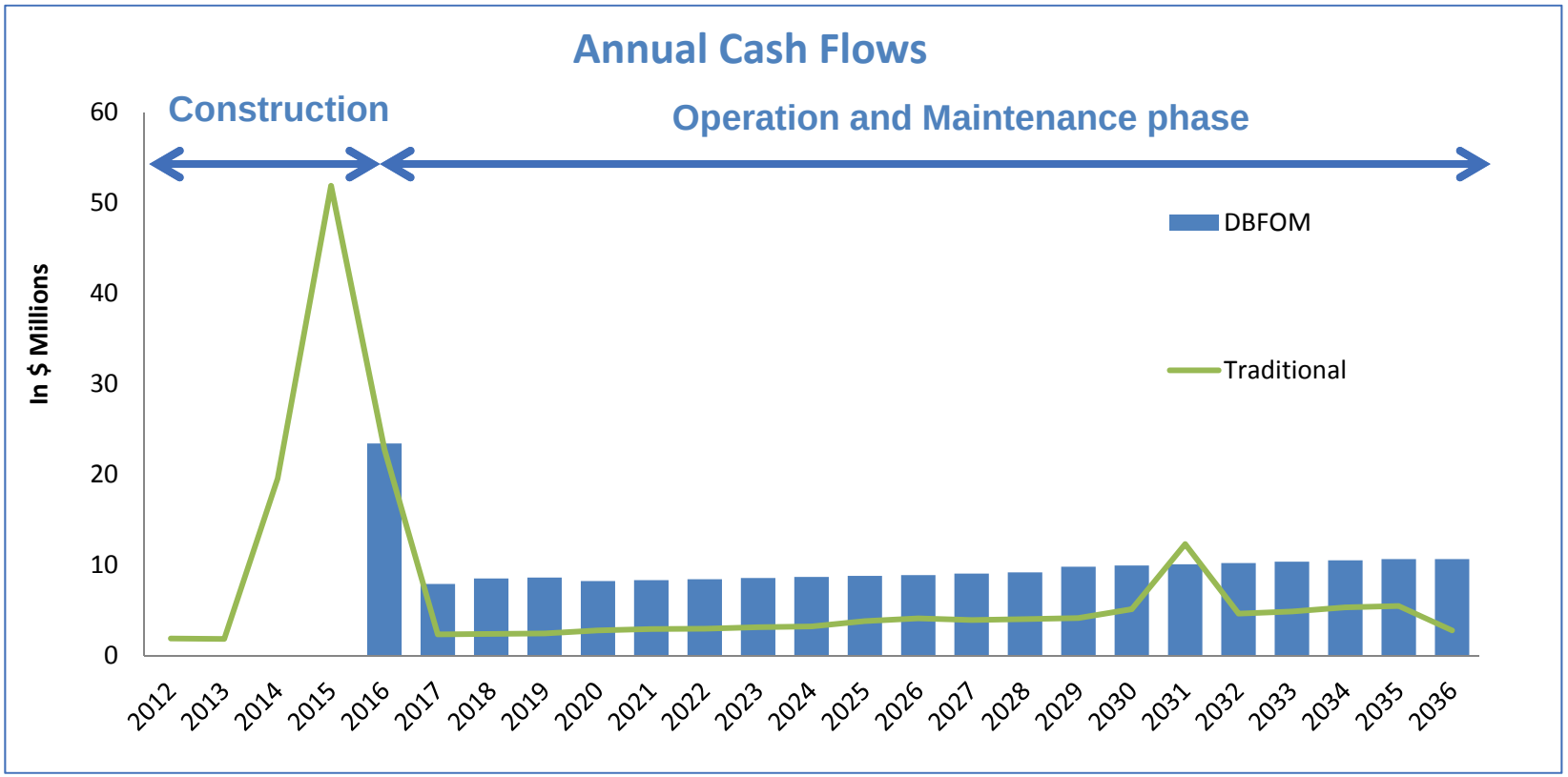
VFM Methodologies

Jurisdictions analyze the same project elements and essentially yield the same conclusion, although there are differences in methodologies:

- Different discount rates (risk-free vs. risk-adjusted)
- Quantify risks differently
- Different treatments of innovation and efficiencies

Payment Mechanism

Traditional vs. P3 Funding Profile



Payment Mechanism during Construction

- Substantial Completion Payment – strong form of Performance-Based Payment
  - Single payment at substantial completion
  - Testing/certification by Independent Certifier
  - 100% of private capital is at risk during construction
  - Strong incentive for Project Co. to deliver high quality asset on time.

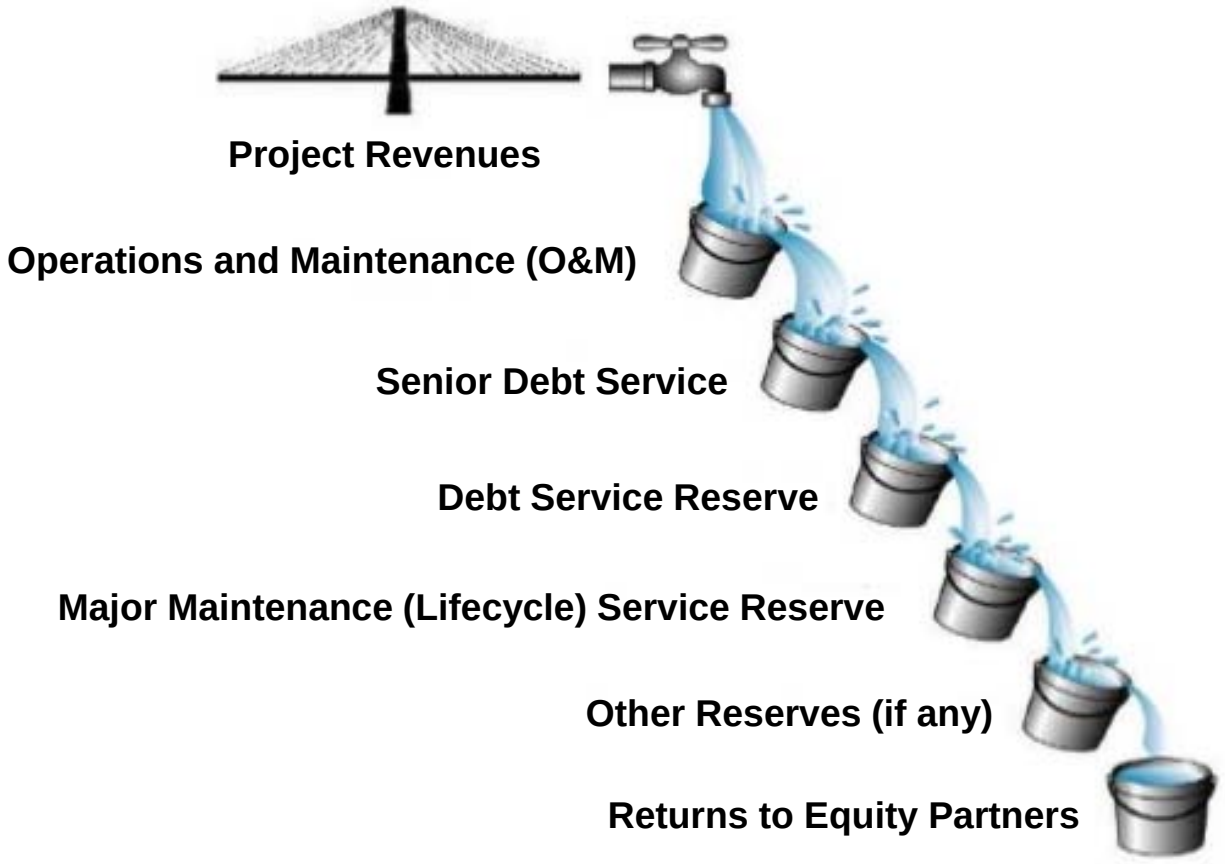
Payment Mechanism during Construction

- Milestone Payments –
  Alternative Performance-Based Payment form

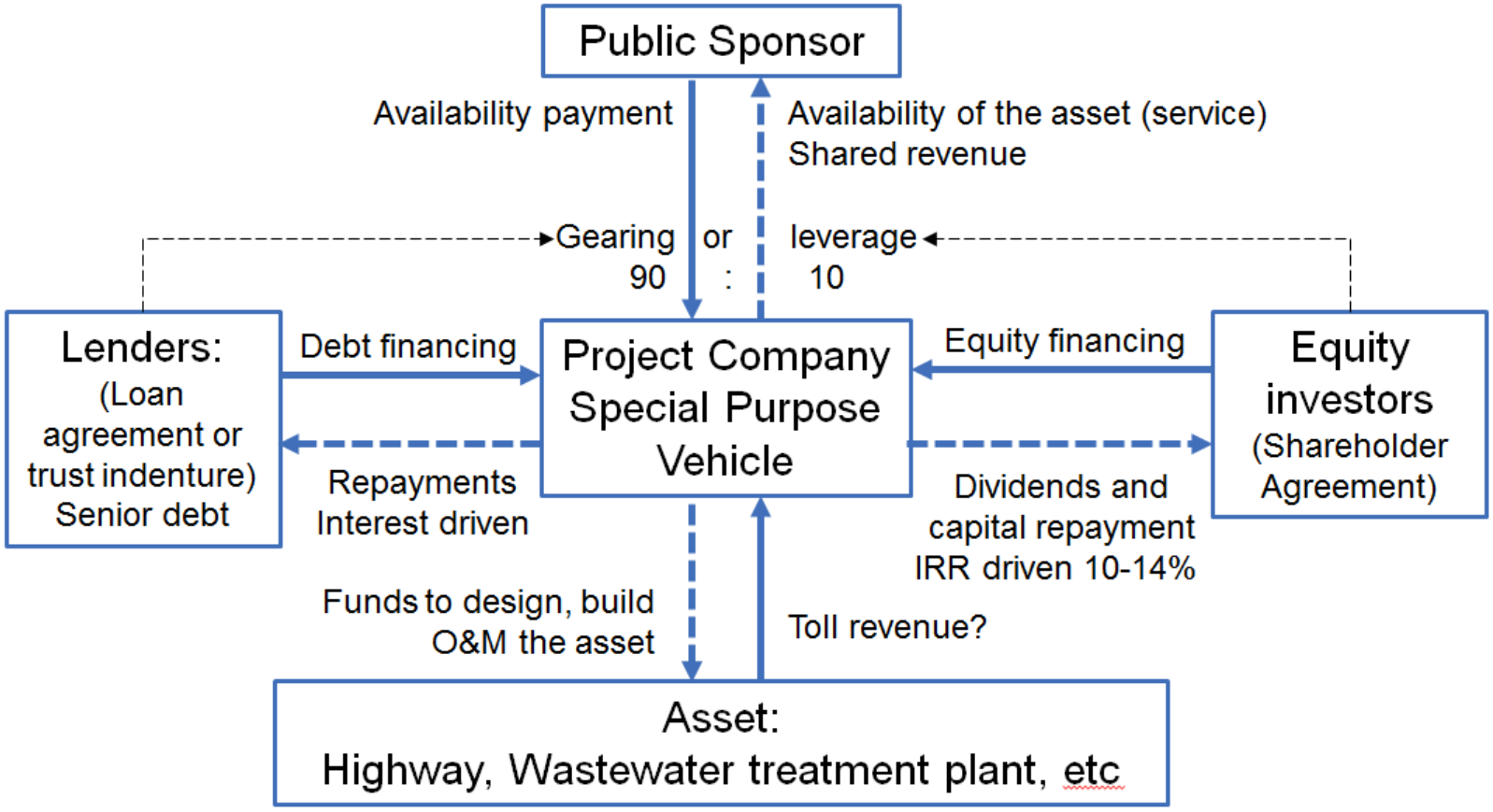
  – Asset bundle – paid upon completion of each asset
    (e.g.: BC Housing – 13 SRO hotels)

  – Clearly defined construction milestones available for use prior to substantial completion of entire asset
    (e.g.: Regina Bypass – section of highway available)

Cash Flow Profile During Operations



Financing Structure



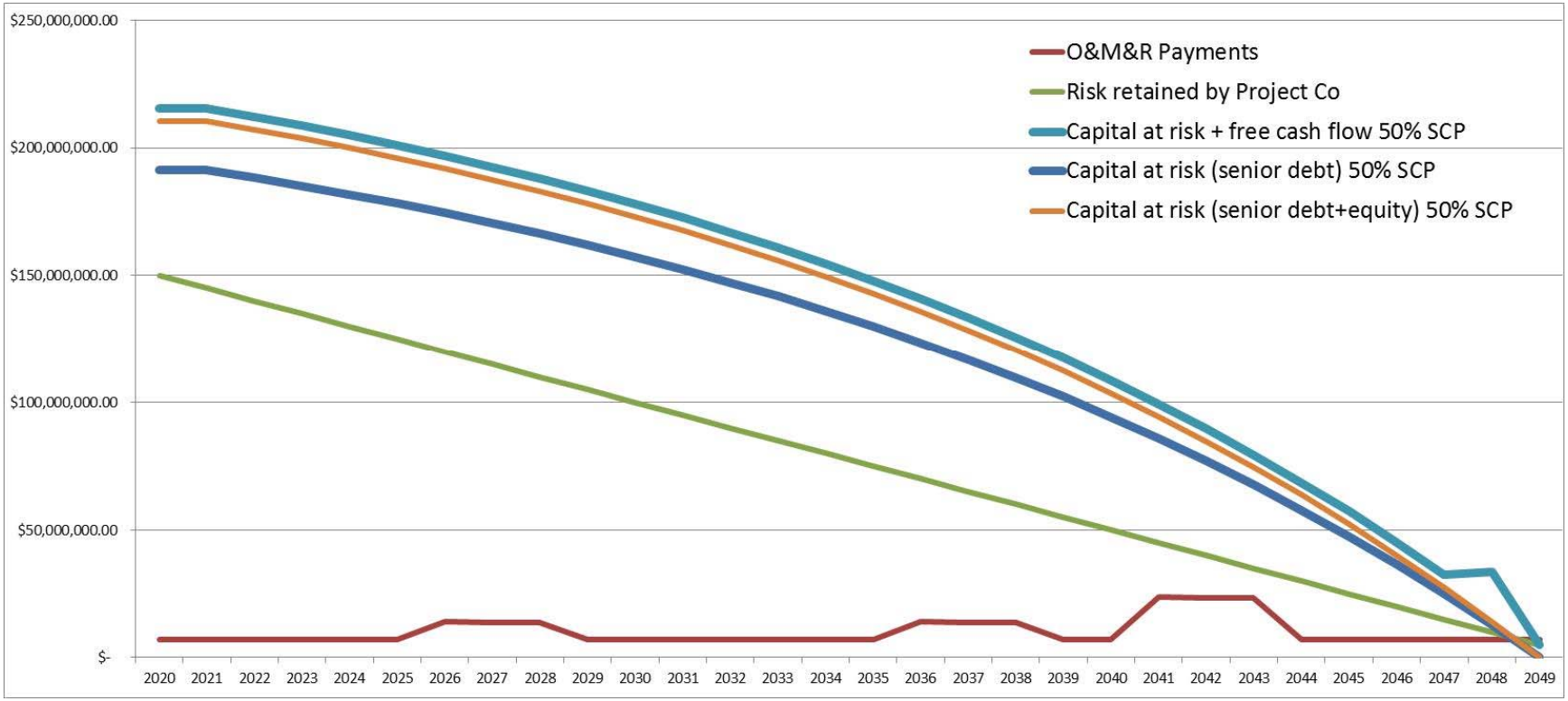
Capital at Risk

Capital at Risk

- Role of private capital at risk in P3 project delivery
  - Compels performance through strong financial securities;
  - Enables streamlined remedies in the Project Agreement;
  - Brings additional scrutiny and expertise through third party due diligence; and
  - Facilitates true integration of the project team.

- Considerations of setting the range
  - Project size, scope and nature
  - Financiers' acceptance
  - O&M risk transfer

Anchoring Capital to Risk



Operation and Maintenance phase

Overview of Efficiencies Study

Efficiencies Study

- PPP Canada engaged Morrison Hershfield Ltd to undertake the study to deepen understanding of technical efficiencies as they occur in P3 projects
- Industry feedback solicited through non-attributable market soundings and consultations
- The findings will aid Project Sponsors in quantifying project related technical efficiencies

Jurisdictional Review

- Not all jurisdictions use the same methodology

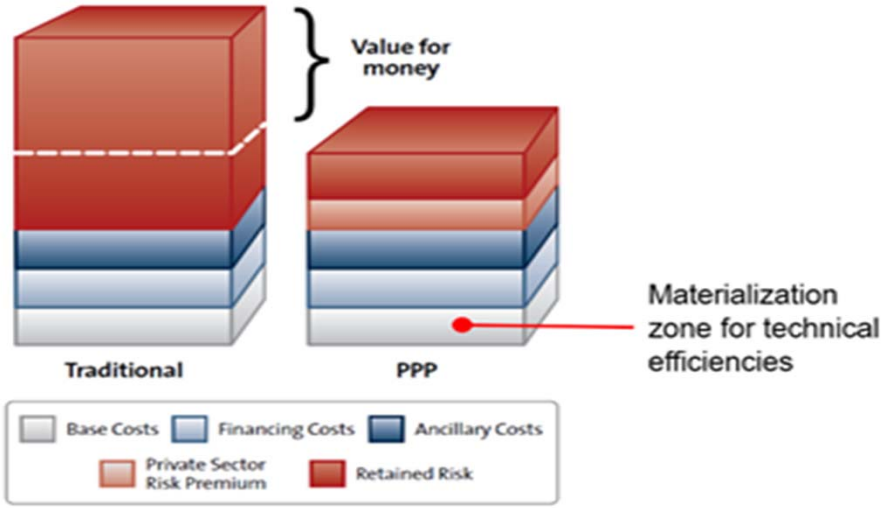
Jurisdiction / Actor	Efficiency factor application	Factor used (% deal value)
AB / Alberta Infrastructure	Estimated at project cost roll-up level. Determined in-house using standardized factor	Range: 5% to 15% applied as blended rate for all efficiencies including risk
ON / Infrastructure Ontario	Estimated at project cost roll-up level. Determined in-house using standardized factor	Standard factor: 12% applied to base costs net of risk
BC / Partnerships BC	Estimated at project elemental level of project by third party	Range: D/B @ 7% to 9%; and OMR @ 1% to 3%
SK / City of Regina	Estimated at cost breakdown level: CapEx; energy and consumables; life cycle costs. Determined in-house using standardized factors	Standard factors: CapEx @ 15%; Energy/consumables @ 10%; Major lifecycle @ 10%

Efficiencies Study

What are Efficiencies?

– can be defined as: *opportunities to incrementally improve the effectiveness and economic performance of a P3 project, and measured on how well and productively the Special Purpose Vehicle (SPV) in a P3 project uses available resources to achieve pre-established objectives and goals.*

Diagram 2.1 – Efficiency materialization zone

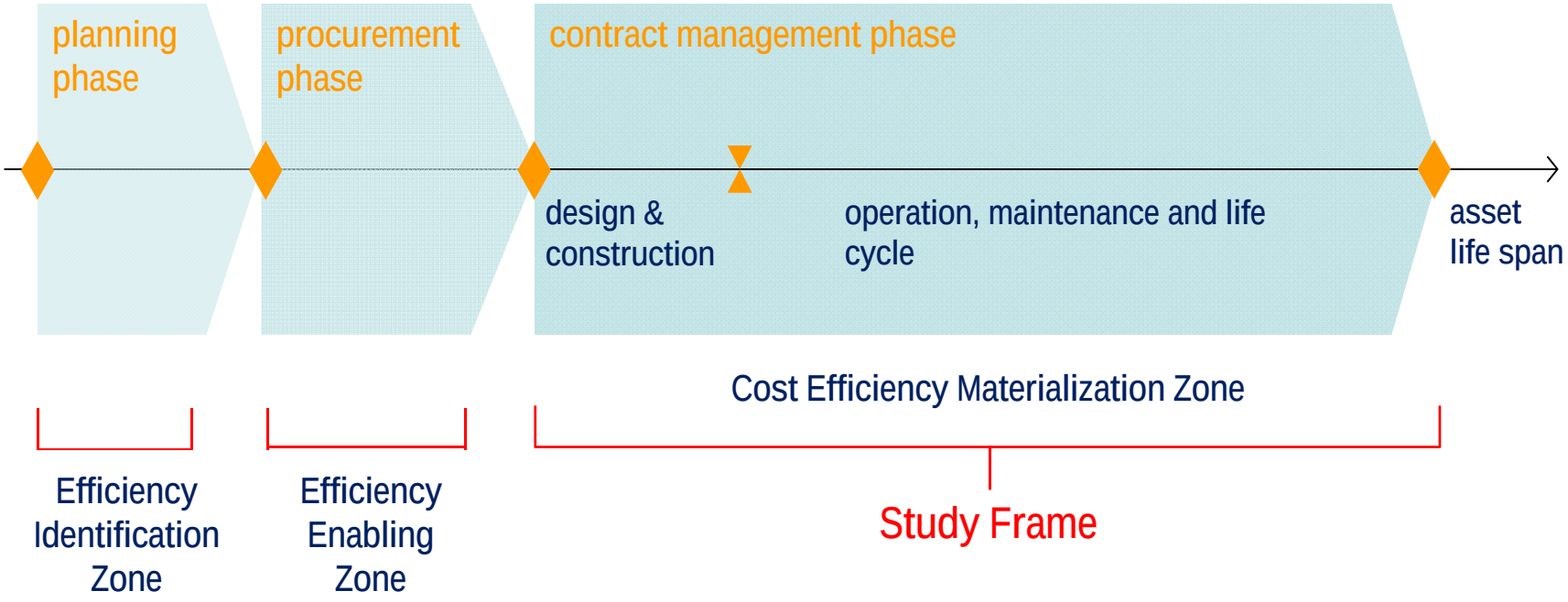


Efficiencies Study

How are Efficiencies Generated?

- Enablers: essentially create a situation in which efficiencies may be created
  - Technical Requirement Flexibility
  - Availability of Technical Variants
  - SPV Expertise
- Drivers: ways in which efficiencies can occur given the presence of an enabler
  - Integration of delivery team practices
  - Application of whole-of-life considerations
  - Enhanced project management practices

Efficiencies Study



Efficiencies Study

Challenges and Limitations

- Hurdles for the Public Sector:
  - Legislative Enablement
  - Asset class immaturity
  - Burden of early due diligence
  - Transfer of input control
- Hurdles for the Private Sector:
  - Requirements inflexibility
  - Background information fidelity
  - Duration of due diligence
  - Local market capacity
  - Long-term warranty

Efficiencies Study

Summary of results:

- Efficiencies were reported as materializing in the execution of P3 project models
- Technical efficiencies are often blended within larger catchment of efficiencies, no consistent practice or conventions were observed related to the estimation or quantification of technical efficiencies
- Public sector can play a role as efficiency enablers

Overview of Efficiencies Matrix

Efficiencies Matrix

- Following consultations, an efficiencies matrix was created to align practice of estimating efficiencies
- The matrix attempts to capture the main drivers of efficiencies
- Similar to a risk matrix – the efficiencies matrix provides an analytical framework to determine efficiencies on a project-by-project basis

Efficiency (%) = (Probability of materialization) x (Impact on net present value)

Efficiencies Workshop

- Conducted like a risk workshop
  - Usually done on the same day as a risk workshop as the same people are required
- Objective of the workshop is to discuss potential efficiencies and fill in the matrix
- Discussion helps to further understand the project and how best to enable efficiencies for the private sector

Efficiencies Matrix

Project Stage	Incremental Cost Efficiency Category (P3 versus Traditional)	Canadian P3 Model (DBFM or DBFOM)														
		Probability of Materialization							Impact on Cost							
	PLEASE HIGHLIGHT EACH CATEGORY BELOW TO VIEW A MORE DETAILED DESCRIPTION/DEFINITION	Zero 0%	Very Low 1% to 20%	Low 21% to 40%	Moderate 41% to 60%	High 61% to 80%	Almost Certain 81% to 99%	Certain 100%	0%	1% to 3%	4% to 6%	7% to 9%	10% to 12%	13% to 15%	User-defined	
Construction	Designed with Constructability Input	○	○	○	○	○	◉	○	○	○	◉	○	○	○	○	0%
	Commissioning	○	○	○	◉	○	○	○	○	◉	○	○	○	○	○	0%
	Economies of scale/standardization	○	○	○	○	◉	○	○	○	◉	○	○	○	○	○	0%
	Whole life/long-term warranty	○	○	○	◉	○	○	○	○	○	◉	○	○	○	○	0%
	Scheduling	○	○	○	◉	○	○	○	○	○	○	◉	○	○	○	0%
	Quality Management	○	○	○	○	◉	○	○	○	◉	○	○	○	○	○	0%
	Flexibility of technical requirements	○	○	○	◉	○	○	○	○	○	○	◉	○	○	○	0%
	Supply chain management	○	○	◉	○	○	○	○	○	○	◉	○	○	○	○	0%
	Impact of change orders	○	○	◉	○	○	○	○	○	◉	○	○	○	○	○	0%
	CM tools/applications	○	○	◉	○	○	○	○	○	◉	○	○	○	○	○	0%
	Insert other (optional)	◉	○	○	○	○	○	○	◉	○	○	○	○	○	○	0%

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