

Transportation P3s – Case Studies contrasting the Canadian and U.S. Approaches

NUTC Spring Industry Workshop

May 2017

Why Governments Use P3 for Infrastructure

RISK TRANSFER

- Reallocate risks to the private sector
 - Revenue/Rates
 - Construction
 - Technology
 - Operations/Maintenance
 - Lifecycle/Capital Reinvestment

RESOURCES

- Minimize use of scarce public resources
 - Personnel
 - Monetary
- Access private sector capital to reduce/delay public sector outlays
 - Debt and equity
- Cost certainty
- Projects return to the Public Sector

EXPERTISE

- Access to top international firms
- New technologies
- Operational best practices
- Drive value with lifecycle costing
- 'Pre-paid' O&M and Lifecycle

TIME

- Accelerate delivery of high priority projects
- Streamlined development process
- Fast-tracked financing using private sector experience and capital resources
- Government can present that projects are moving forward and completed

Infrastructure Procurement Alternatives

	ALTERNATIVE	DESCRIPTION	GOVERNMENT RETAINED RISKS	
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">0%</div> <div style="margin-bottom: 10px;">↑</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Risk Transfer to Private Sector</div> <div style="margin-bottom: 10px;">↓</div> <div>100%</div> </div>	Design – Bid – Build	<ul style="list-style-type: none"> • Traditional Procurement • Designer/Architect is agent of the government • Significant skill required to manage cost overruns/change orders 	<ul style="list-style-type: none"> • Some price mitigation from fixed price contracts • Significant interface risk between contractor and designer/architect • Key criteria is low construction price and not whole life costing 	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">low</div> <div style="margin-bottom: 10px;">↑</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Unadjusted Cost to Government</div> <div style="margin-bottom: 10px;">↓</div> <div>high</div> </div>
	Design – Build	<ul style="list-style-type: none"> • Government contracts for the design and construction of assets directly • Contractor Coordinates • Mix of interim and completion payments • Government to manage and operate assets 	<ul style="list-style-type: none"> • Construction (mitigated through time-certain, fixed-price contract) • Financing, operations, maintenance, residual value retained by government entity 	
	Design – Build w/ operating contract	<ul style="list-style-type: none"> • Traditional procurement with an operating contract with Private sector for operating the assets post construction • Often operating contract includes a payment penalty mechanism to ensure performance • Only format that allows municipal bond financing for non-transportation assets 	<ul style="list-style-type: none"> • Construction, financing, maintenance, residual • Operations outsourced to Private sector with payment penalty mechanism • Often used with already constructed assets or Governmental services 	
	Design – Build – Finance	<ul style="list-style-type: none"> • Government contracts with Private sector to deliver constructed assets • Payment at completion or paid over time as lease • Government to manage and operate assets 	<ul style="list-style-type: none"> • Private sector takes construction and financing risk • Government retains ownership risks including operating, maintenance and residual 	
	Design – Build – Finance – Operate – Maintain	<ul style="list-style-type: none"> • Government contracts with Private sector to deliver constructed assets and manage and operate assets under long-term concession • Option for Government to pay fixed “availability” amount or have Private sector collect fees or tolls on asset 	<ul style="list-style-type: none"> • Private sector takes all risks except residual as assets typically revert to Government at end of concession • Payment over time often with monetary penalties for substandard performance 	

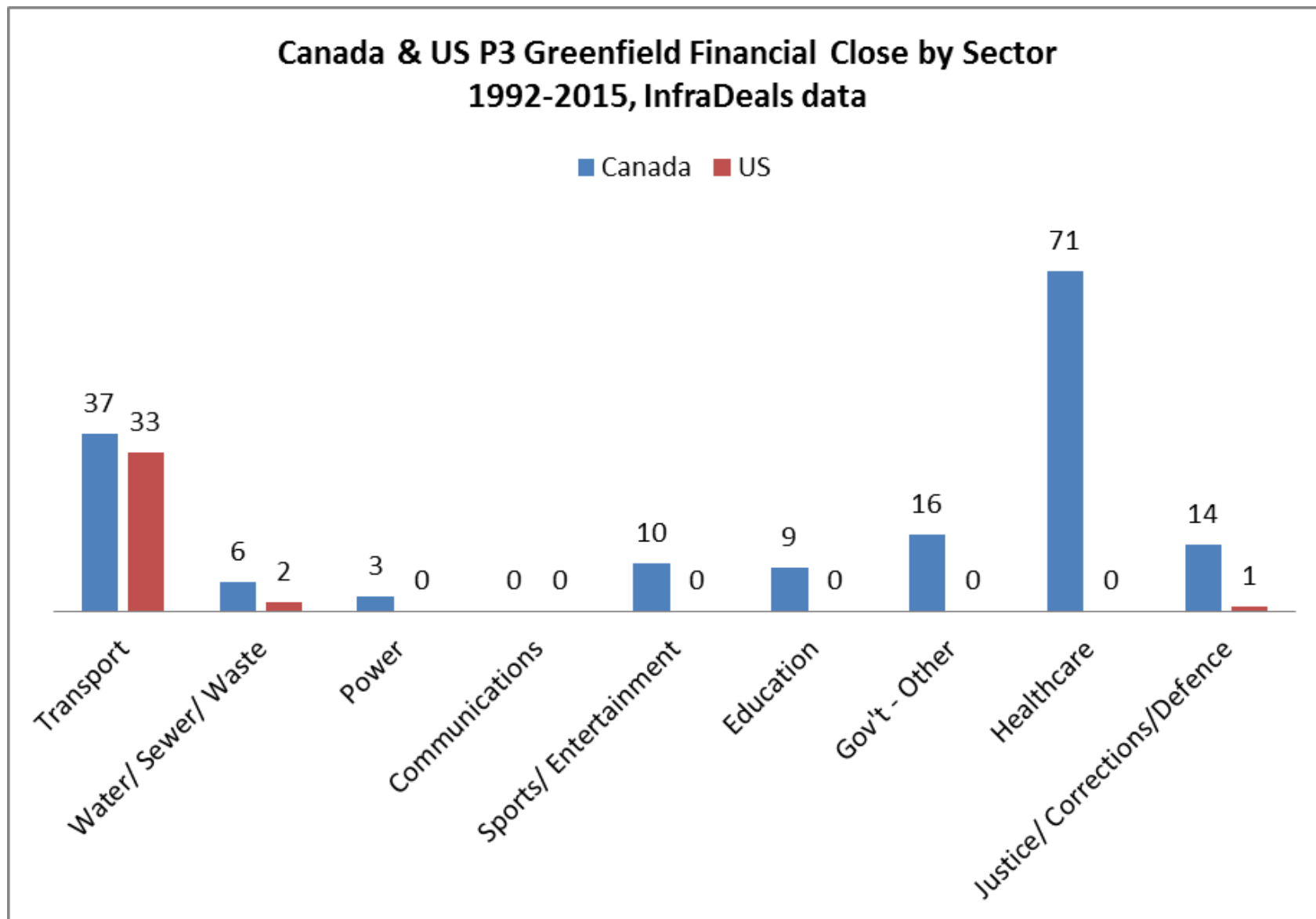
Risk Matrix

DBFOM MODEL – FOUR PROJECT TYPES

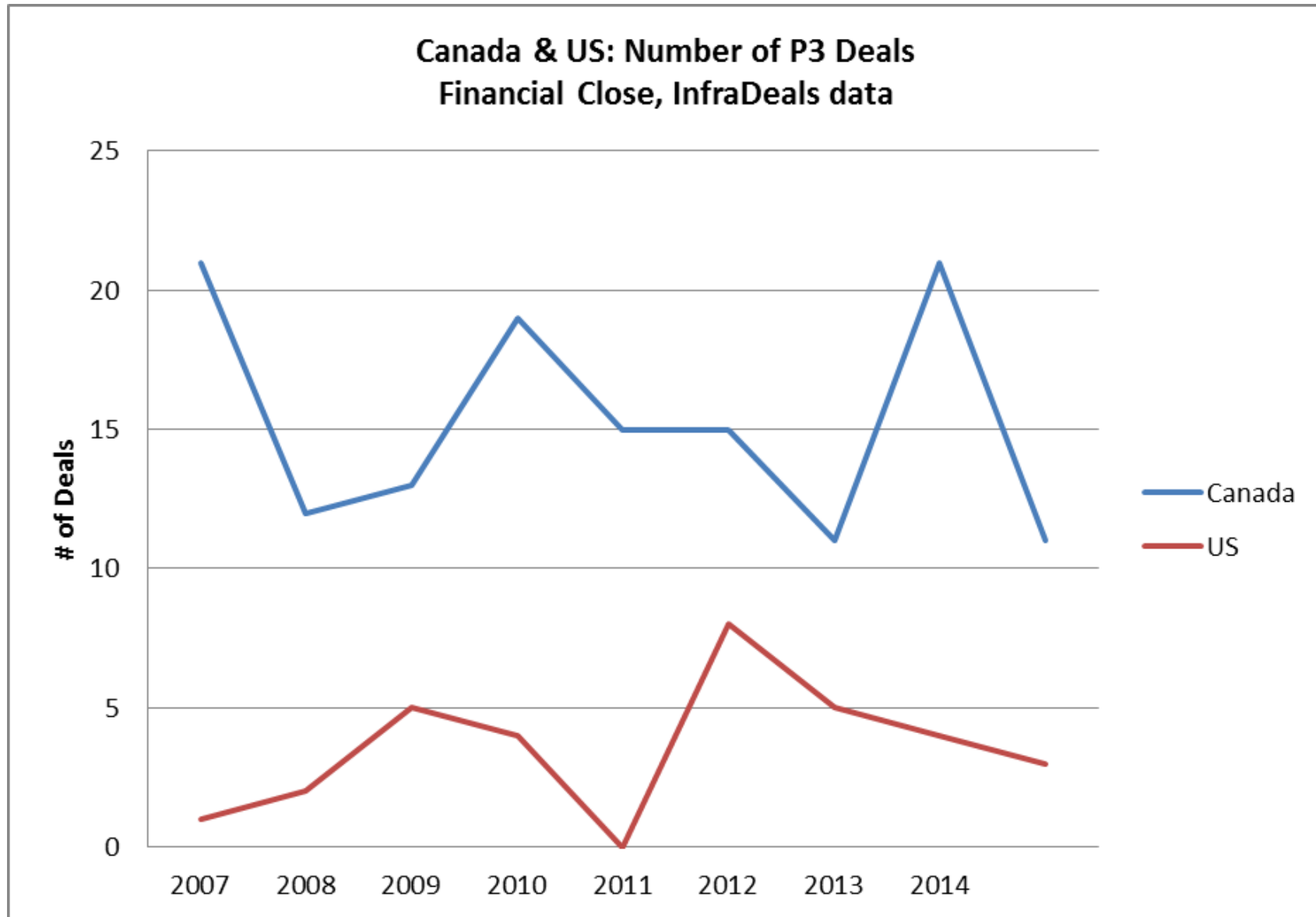
- Public-private partnership (“P3”) concession structures vary by:
 - Scope:** Greenfield (new construction) vs. Brownfield (asset monetization); and
 - Payment Mechanism:** Revenue Risk (tolling/user fees) vs. Availability Payments (from government to private sector)
- Greenfields facilitate project delivery and Brownfields result in an upfront payment to the government sponsor (e.g. for budget deficit reduction)

		Higher Risk	Lower Risk
Higher Risk	Revenue Risk Private developer collects user fee revenues from the project	Greenfield Construction Midtown Tunnel SR-125 North Tarrant Expressway JFK Terminal 4	Brownfield Asset Monetization Chicago Skyway Indiana Toll Road San Juan Airport Chicago Parking Garages Chicago Metered Parking <i>Tolls/User Fees</i>
Lower Risk	Availability Payment Governmental sponsor makes performance-based payments to the private developer	Presidio Parkway Denver FasTracks Port of Miami Tunnel Long Beach Courthouse East End Crossing Indianapolis Courthouse Penn Bridges	<i>Availability Payments from Government</i> <i>Several portfolio sales in Canada and Europe</i>

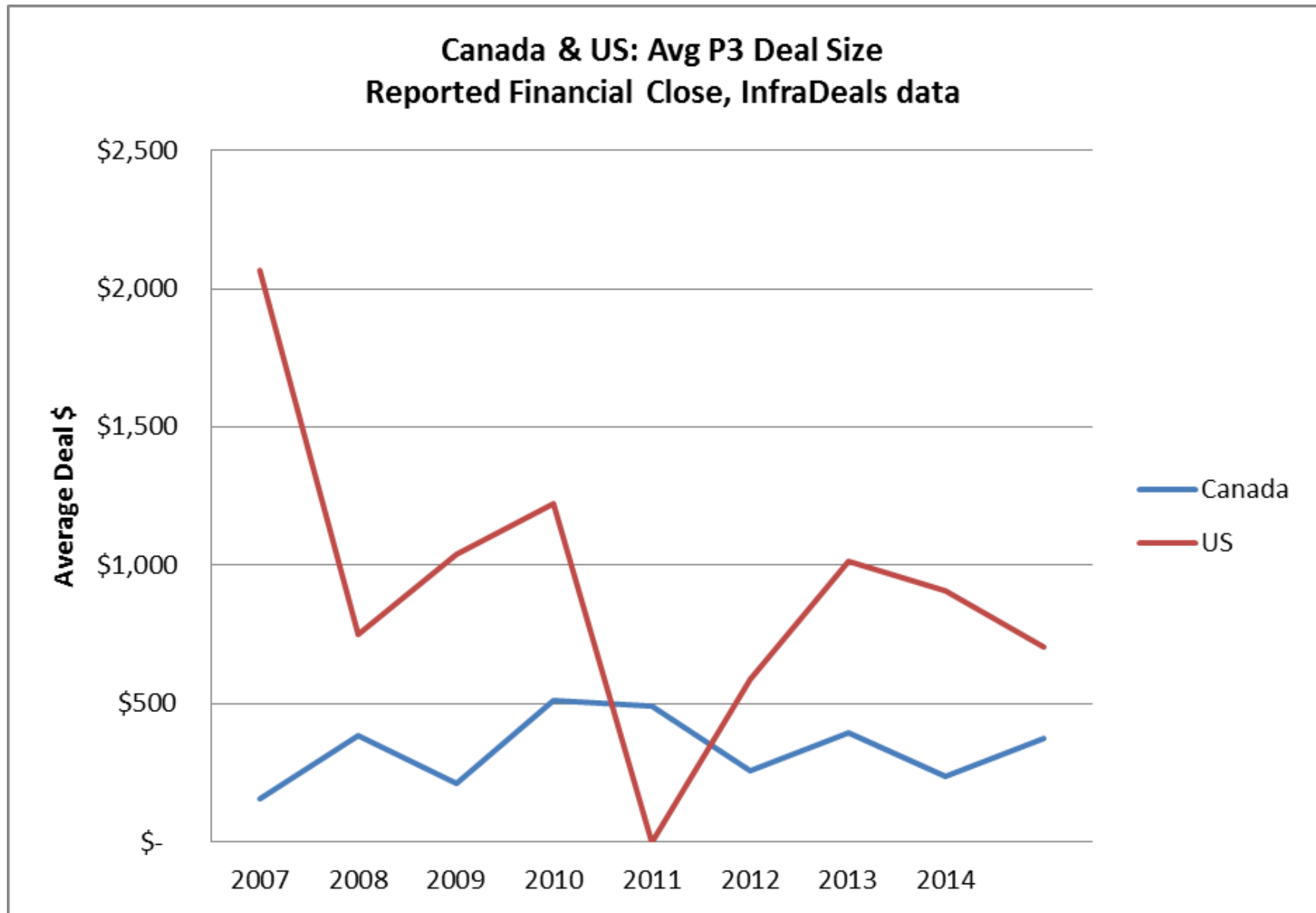
Market Comparison – Closed Transactions



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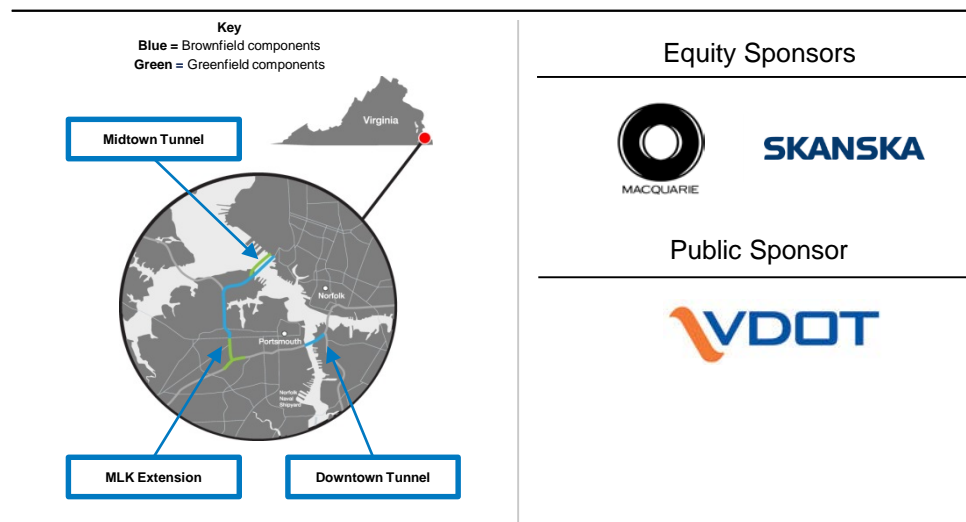


Case Study: Midtown Tunnel P3 Project

\$663,750,000 Tax-Exempt Private Activity Bonds, Series 2012

- The Virginia Department of Transportation (“**VDOT**”) and Elizabeth River Crossings OpCo LLC (“**ERC**”) entered into a 58-year DBFOM public private partnership to toll the Elizabeth River crossing in Norfolk, Virginia.
 - ERC will carry out three major infrastructure improvement programs across the Elizabeth River (the “**Project**”):
 - **New Midtown Tunnel**
 - **MLK Expressway Extension**
 - **Improvement of Existing Assets**
- ERC is owned by **Macquarie** (50%) and **Skanska** (50%)
 - ERC will transfer all design and construction obligations to the design-build contractor (“**DBJV**”), a joint venture of major construction firms including Skanska, Kiewit and Weeks Marine.
 - Construction works will be performed over a **5 year period** at a **cost of \$1.47 billion**
 - Tolling and maintenance operations will be carried out by Federal Signal through an Operating Agreement
- Project financing involves an innovative capital structure utilizing a mix of private activity bonds (“**PABs**”), subsidized loans from the U.S. DOT (“**TIFIA Loans**”), VDOT public funding, private equity contributions and revenues during construction
 - Tolling proceeds during the operational phase are the only source of revenue for repayment for the Project capital sources

PROJECT MAP AND KEY PARTICIPANTS



SOURCES AND USES OF PROJECT FUNDING (\$000S)

Sources		Uses	
PABs plus Original Issue Premium	\$675,003	Construction Works	\$1,468,460
TIFIA Loan	467,977	Tolling and O&M	219,762
Revenue During Construction	368,212	Debt Interest & Fees	225,628
VDOT Public Funds	308,605	Debt Service Reserve	18,547
Equity Contribution	221,043	Major Maintenance Reserve	46,573
		Transaction Costs	61,870
	\$2,040,840		\$2,040,840

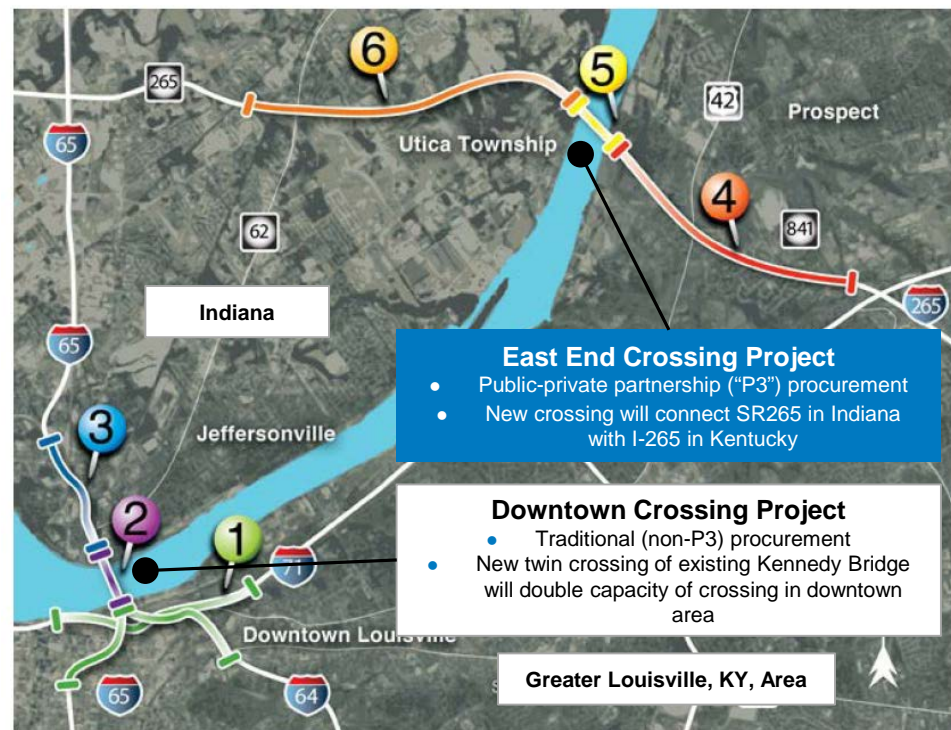
Case Study: Ohio River Bridges – East End Crossing Project

PROJECT OVERVIEW

- The Indiana Finance Authority (“**IFA**”) is procuring the Ohio River Bridges – East End Crossing project (“**ORB**” or the “**Project**”) as a public-private partnership
- The scope of the Project includes the design, construction, financing, operation and maintenance (“**DBFOM**”) of a new river crossing across the Ohio River, connecting Indiana and Kentucky just northeast of the city of Louisville
- The Project will be delivered under a ~39-year Public-Private Agreement (“**PPA**”)
 - Estimated 4 year construction period plus scheduled 35 year operating period
- Estimated capital requirement of \$1+ billion will be funded through private sources on a non-recourse, project financing basis
 - Debt and equity investors will be repaid through milestone payments made from the IFA during construction and through availability payments made by the IFA during the operating period
- Financial close reached in March 2013
 - Project was funded through long-term, tax-exempt private activity bonds issued in the U.S. capital markets

MAP

- | | | |
|---|--|---|
|  KENNEDY INTERCHANGE |  DOWNTOWN INDIANA APPROACH |  EAST END BRIDGE |
|  DOWNTOWN BRIDGE |  EAST END KENTUCKY APPROACH |  EAST END INDIANA APPROACH |



Availability Evolution – the 407 Experience

	407 ETR - 1999	407 EE – 2012/2014
Model	Revenue	Availability
Term	99 years	30 years + construction
Financing	Short Term bank Bridge to Capital Markets	Short Term Bank and Bond with Long Term Amortizer
Consortium	CINTRA/SNC/ Pension Fund	CINTRA/SNC
Rating	A	A
Payment	\$3 Billion	None
Revenue Risk	Traffic Volume	None
Price Setting	Consortium sets tolls	Government sets tolls
Contract	Project Agreement	Project Agreement

P3 Market Development Stages

- Stage 1: Exploratory Projects
 - Individual, unconnected projects
 - No coordinated program
 - Public P3 – Authorizations
 - Pioneering Projects⁽¹⁾
- Stage 2: Developing Programs
 - Ramp-up in activity
 - P3 Agencies emerge ⁽¹⁾
 - Dominant Models emerge
 - Dominant Sectors emerge
- Stage 3: Mature Market
 - Dominant procurement method established
 - Adoption as sustainable policy strategy
 - Addition of new asset classes ⁽¹⁾
- Stage 4: Consolidation
 - Holdout jurisdictions join the process
 - Long term participants empty of projects
 - Resistant sectors and jurisdictions added ⁽¹⁾

(1) Bolded in following summary slide

Canadian P3 History

First Wave <i>Exploratory Projects</i>		Second Wave <i>Developing Programs</i>		Third Wave <i>Mature Market</i>		Fourth Wave <i>Consolidation</i>	
1988	Pearson Terminal 3	2000	Wastewater programs: Port Hardy/Canmore/Goderich	2006	Golden Ears Bridge	2012	Ottawa LRT
1991	Teranet	2001	Calgary Ride the Wind Transit Bruce Nuclear Plant	2007	Infrastructure Ontario	2013	Iqaluit Airport (Nunavut)
1992	Vancouver Airport	2002	Cook Chill Food Program Viva Bus	2007	North Bay Hospital Autoroute 25 Calgary Ring Road	2014	John Hart Generating Waterloo LRT
1993	Confederation Bridge	2002	Britannia Waste to Energy Vancouver Waste to Energy	2008	Alberta Schools I Guelph Data Centre	2014	Swift Current Health (Sask) Saskatoon Civic Ops (Sask)
1995	Charleswood Bridge	2003	Driver Examination Services	2008	Autoroute 30	2015	Eglinton LRT St Lawrence Bridge (Federal)
1996	NAV Canada Highway 104	Partnerships BC Program		2009	Fort St John Hospital Moncton Courts BridgePoint Health CAMH Niagara Health Toronto Detention		
1997	Nova Scotia Schools	2004	Sierra Yoyo Desan William Osler Hospital Abbotsford Hospital Royal Ottawa Hospital	2009	Montreal Concert Hall		
1998	F-M Highway Moncton Water Treatment Leo Hayes High School	2005	Edmonton Ring Road Britannia Mine Treatment Trans-Canada Highway (NB) Sea to Sky Highway Canada Line Bennett Bridge	2010-2011	Quinte Courts Waterloo Courts CSEC LTAP HQ RCMP E-Division ON Forensic Centre OPP Modernization Windsor Essex Parkway McGill Hospital Toronto Airport Tunnel Pan-am Games Facilities		
1999	407 ETR Enwave District Heating						

Differences in P3 evolution

- Summary of potential reasons for differences in P3 evolution between jurisdictions
 - Early stages, with majority of development and innovation only at DOTs
 - Focus on deficit reduction and self funding projects
 - Lower political sensitivity to tolls
 - Significant federal government incentives for transportation projects
 - Tax subsidy savings for transportation projects
 - Consensus required at political level
 - Lack of a catalyzing state funded health care system

Case Study: Maryland Purple Line Transit P3

OVERVIEW

- The Purple Line is a 16-mile light rail line that will extend from Bethesda in Montgomery County to New Carrollton in Prince George's County. It will provide a direct connection to the Metrorail Red, Green and Orange Lines; at Bethesda, Silver Spring, College Park, and New Carrollton. The Purple Line will also connect to MARC, Amtrak, and local bus services.
- The Purple Line will be light rail and will operate mainly in dedicated or exclusive lanes.
- Twenty-one stations are planned.
- The Maryland Transit Administration a division of the state DOT is leading the project.
- The project will consist of an approximately 5 year construction and 30 year operating period
- The project will be completed on a DBFOM basis that includes the supply of the vehicles.
- The concessionaire will be owned by Meridiam, Fluor and Star America.
- The debt portion of the financing was raised through the TIFIA program and the issuance of Private Activity Bonds.



PROJECT TIMELINE

- RFI & Industry Forum – Spring 2013
- RFQ released – November 2013
- Shortlist announced – January 2014
- Bids submitted – December 2015
- Preferred Bidder announced – February 2016
- Financial Close – June 2016
- Design and Construction – 2016-2021

Case Study: Eglinton Crosstown LRT

PROJECT OVERVIEW

- The Eglinton Crosstown LRT project is part of Metrolinx's regional transportation plan. It is the first of several new transit projects planned for the Toronto area and will help to reduce congestion, and improve both the reliability and integration of the transit services available to Toronto residents
- The Eglinton Crosstown LRT will run across Eglinton Avenue between Mount Dennis and Kennedy Station. The 19-kilometer corridor will include a 10-kilometer underground portion between Keele Street and Laird Drive. It will have 25 stops and stations, linking to numerous bus routes, three subway stations, and various GO Transit lines
- The Preferred Proponent selected by IO, who procured the project on behalf of Metrolinx, is responsible for the Design, Build, Finance, and Maintenance of the project
- The maintenance phase will last for a 30-year period following construction
- Large size of the project required financing with a combination of short term and long term financing achievable within capacity of the Canadian capital markets
- Complexity involved in transit project requires that risks are appropriately allocated among stakeholders while achieving an investment grade rating and a risk transfer model that is acceptable to the market

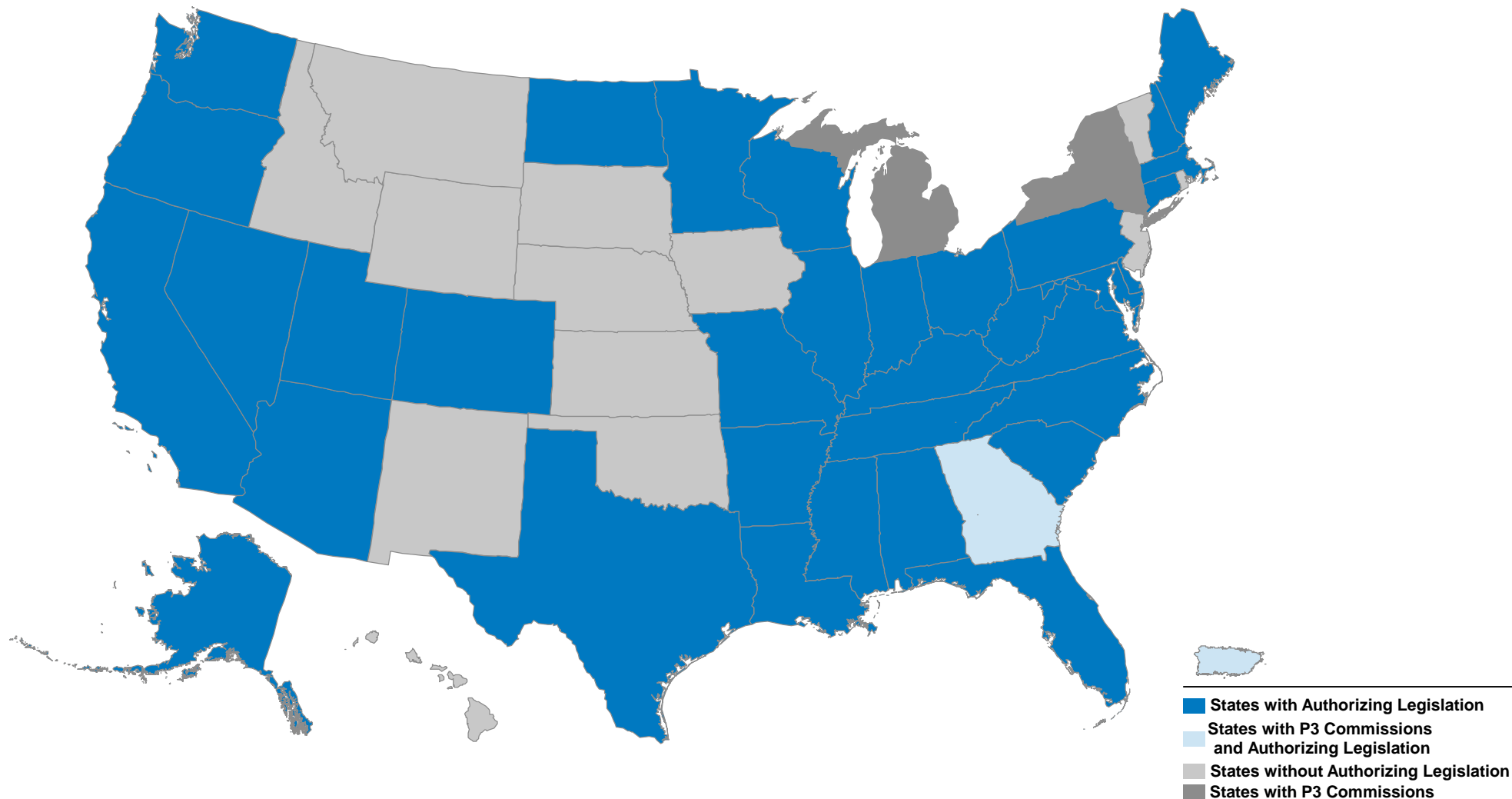


PROJECT TIMELINE

- Request for Qualifications – January 2013
- Short-list of Bidders Selected – December 2013
- Winning Bidder Selected – July 2015
- Construction Begins – March 2016

States with P3 Authorization

Home Rule Note: Cities with “home rule” governance such as Chicago and Pittsburgh are able to enact local P3s without statewide authorization or approval



35 U.S. States and 1 U.S. territory that have enacted statutes that enable the use of various P3 approaches for the private development of infrastructure

Key Success Factors

- A number of items have led to the success of the P3 model
- Not all of them were intentional and came from improving on initial errors or from private sector feedback
- Success has been at the state level

PROCUREMENT AGENCY

- A separate agency to shepherd project – avoids legacy department politics
- Non-political leadership – senior staff drawn from private sector and career Government employees
- Build project teams that focus on expertise
- Use VFM studies and fairness advisor to further emphasize transparency to public and bidders
- Ministry department is the client

PROJECT SELECTION

- Start with relatively simple, well supported projects
- Work out the ‘kinks’ before trying more complex projects
- Initially avoid municipal projects where you can’t fully direct process
- Create a transparent pipeline of projects - attracts bidders to set-up locally

EXISTING TEMPLATE

- Use existing template to maximize both bidder and global lender interest
- Complete new projects using the same standardized docs and experienced staff
- Collaborative approach (Bidder meetings) to identify risk transfer savings – improve on existing documents and refine to local market
- Release final documents to the public with only major commercial terms excised

FOCUS ON CONSTRUCTION

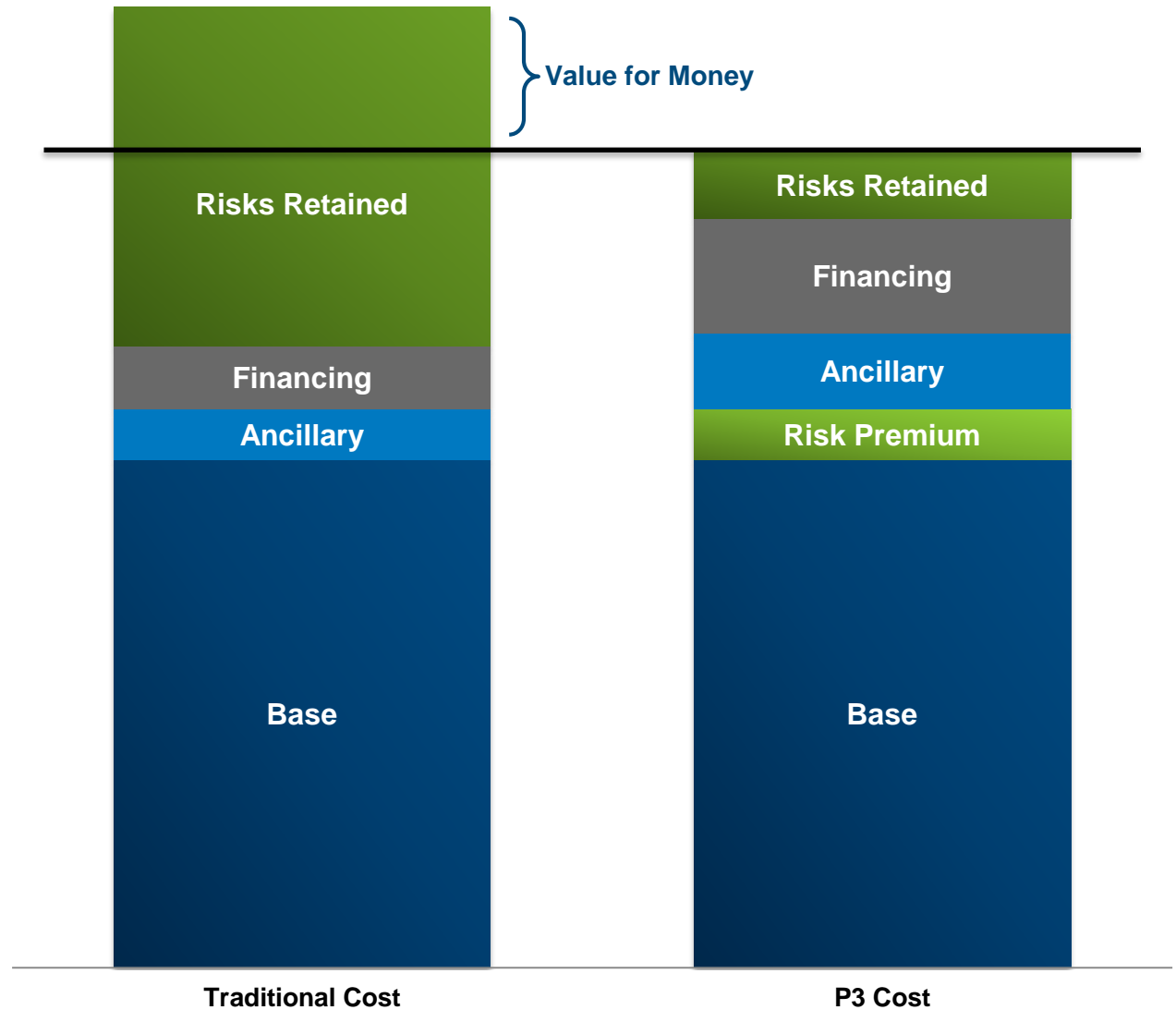
- Public support comes from perceived problems with cost overruns
- Clinical (eg doctors/nurses) left out of structure – project not introduced as a way to reduce or outsource staff
- Collaborative approach between construction and public sector union objectives

Picking the Right Availability Project

- The characteristics of the 'right' project is very similar, whether it's the first project of a multiple project program or the first and only deal a municipality or department will be doing in the near future.
- The key characteristics we have observed are as follows:
 - Size - The optimal size is \$250 to \$1.5 billion.
 - Easy to define boundary - usually a physical limit which could be a building or a segment of roadway.
 - Build, not sell or outsource - it's beneficial to avoid early projects that attract negative attention from unions and interest groups.
 - Whole Life Benefit - the P3 format works best in projects where the private sector takes both construction and operations risk.
 - Funding is in place - the biggest concern from potential bidders is the risk that the government owner will not achieve financial close.
 - Not completely designed - optimizing design leads to cost savings and the best opportunity for whole life savings.
 - Value for Money!

Value for Money

- Value for Money (“VFM”) analysis compares the cost of traditional procurement and P3 procurement to determine the delivery model with better value proposition
- The analysis involves comparison of the following factors:
 - Base costs of design, construction, O&M
 - Risk premium, charged by private sector consortium
 - Ancillary costs related to procurement
 - Financing costs
 - Risks retained by the public sponsor
- Although financing costs are higher for P3, VFM to public sponsor results from risk transfer



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