

# Washington JTC P3 Educational Workshop

AECOM

KPMG

NOSSAMAN LLP

## Discussion Materials August 2<sup>nd</sup>



# Day One Agenda

<b>Time</b>	<b>Item</b>	<b>Presenter</b>
10:00 AM	Welcome	Rep. Judy Clibborn Sen. Mary Margaret Haugen
10:15 AM	Introductions/Overview	
10:30 AM	Transportation Funding Overview	Transportation Secretary Paula Hammond
10:45 AM	Treasurer's P3 perspective	State Treasurer Jim McIntire
11:00 AM	P3 Overview	Discussion
11:30 AM	History of P3 Projects	Tim Wilschetz
12:00 PM	Working Lunch	
12:30 PM	Federal Funding & Financing	Tim Wilschetz
1:15 PM	Screening Process	Sam Barend/Tim Wilschetz
2:00 PM	Risk Allocation	Discussion
2:30 PM	Break	
2:45 PM	P3 Structures	Tim Wilschetz/Simon Shekleton
3:30 PM	Value for Money Analysis	Liam Kelly/Tim Wilschetz
4:00 PM	Close	

# Introductions / Overview

# Housekeeping

- Welcome
- Venue and Facilities
- This workshop is Interactive, please ask questions at any time
- Glossary of P3 Terms and Definitions for your reference

# Consultant Team Overview



- Global provider of professional technical and management support services:

- Transportation
- Facilities
- Environmental
- Energy
- Government



*A Fortune 500 company, AECOM serves clients in more than 125 countries and had revenue of \$7.3 billion during the 12 months ended March 31, 2011.*

- 45,000 employees in over 125 countries and a leader in all key markets served
- In-depth understanding of the Design-Build and P3 methods of delivery
- Involvement in over 450 P3 projects globally

# Consultant Team Overview



- Industry leading public side financial advisor
- Advised 10 US States in developing programmatic approach to innovative finance and P3
  - Served as financial and procurement advisor to InDOT, KYTC, VDOT, MDOT, NCDOT, FDOT, NDOT, Caltrans, CDOT and TxDOT
  - Have advised clients on closing over \$9 billion of US P3 transactions since 2008 including North Tarrant, LBJ, Capital Beltway, and SH 130
- Currently advising over 30 US projects including Presidio Parkway-CA, Ohio River Bridges-IN/KY, New International Trade Crossing-MI, Midtown Tunnel-VA, & I-15 Managed Lanes-NV

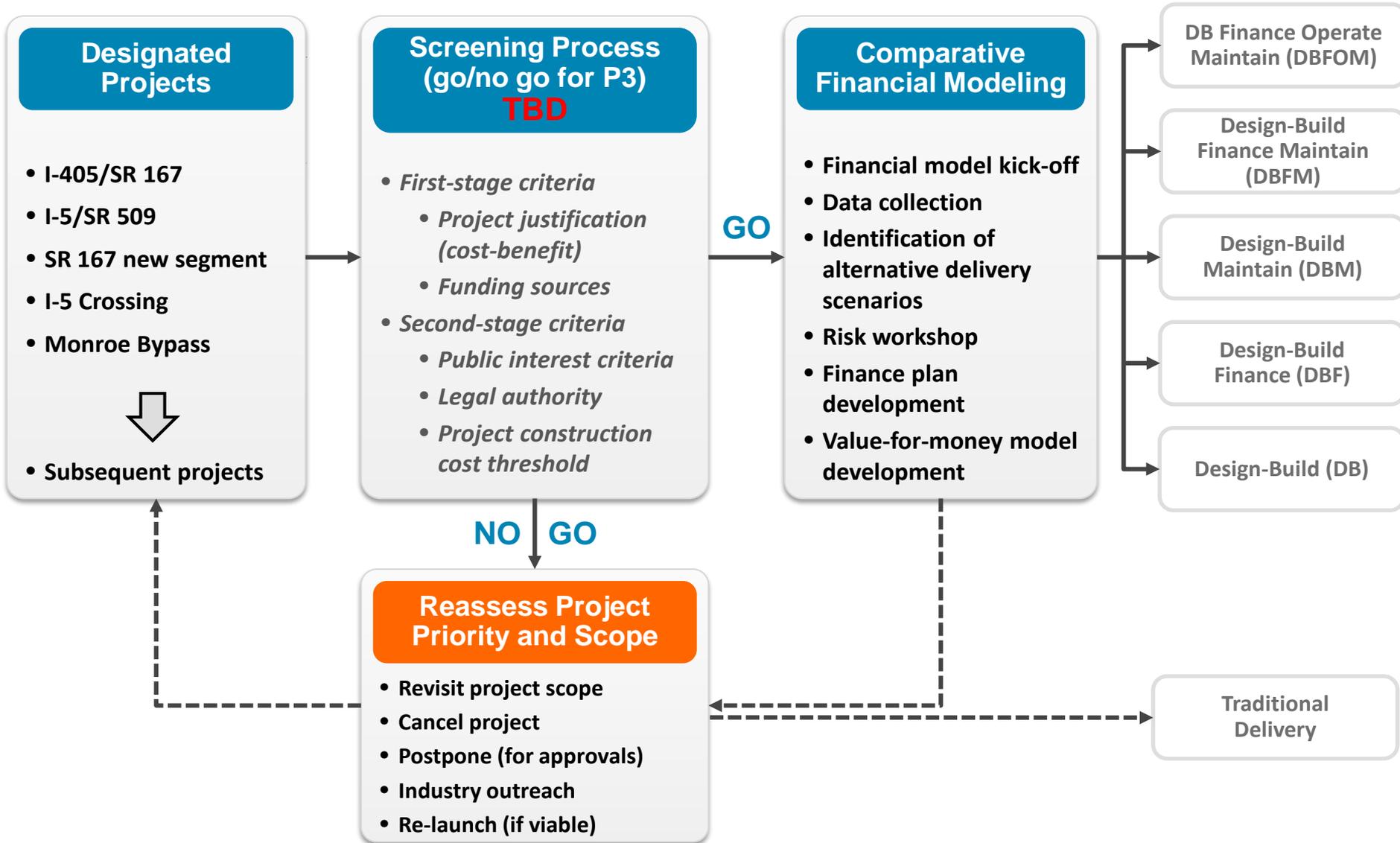


- Leading US P3 legal advisor
  - Advised the Michigan DOT, Nevada DOT and Riverside County Transportation Commission on P3s, tolling and alternative delivery
  - Currently assisting Nevada and Arizona DOTs in the development of P3 Programs
- Crafted P3 legislation for CA, IL, TX, IN, FL, AZ, UT, WA, and OR.
- Assisted government in reaching financial close for North Tarrant, LBJ, I-595, the Port of Miami Tunnel, and the South Jordan Bridge
- Currently advising on the following P3 projects: SR 91 Express Lanes extension, CA; Knik Arm Bridge, AK; New International Trade Crossing, MI

# Study Outline

- Education
  - Objective of this workshop is to engage the JTC Policy Workgroup and Staff Workgroup in dialogue and education
- Develop Project Screening Tool
- Develop Comparative Financial Model
  - Conduct 2 Day Table Top Exercise
- Run the five projects through the screening tool and finance model
- Develop Conceptual P3 Implementation Plan
- Prepare Final Report

# Project Screening Context



# P3 Overview

# What is a Public Private Partnership?

A Public Private Partnership involves the public and private sector partnering to share the risks and rewards of services traditionally delivered by the public sector

Effective P3s are structured to optimize public agency objectives:

- Transparency and public awareness
- Prioritization of Objectives
- Quantitative Value for Money
- Identification of qualitative measures of suitability (legal/legislative authority, public protections, etc.) to supplement analysis
- Public agency retention of asset control, through binding specification of performance requirements and standards
- Contract mechanisms to ensure long-term standards are achieved, including financial and specific performance penalties

# What has driven the development of innovative project delivery, including Public Private Partnerships?

## **Mounting public sector challenges**

- Aging infrastructure
- Growing population in urban centers
- High service level expectations
- Construction cost increases
- Budgetary constraints
- Slowing revenue growth
- Resistance to tax increases
- Cost overruns and project delays under traditional procurements

## **Potential value of P3s**

- Leveraging limited public capital
- Affordability
- Value for money (cost and time savings)
- Whole-life costing
- Single “tool in the toolbox”
- Output/outcome driven solution
- Risk sharing
- Innovation
- Competition

# Public Private Partnerships in Context

## TRADITIONAL DELIVERY

**Each phase procured separately through a succession of discrete contracts.** Facility design is completed prior to tendering construction, which is generally accomplished through multiple contracts; maintenance and operations self-performed or separately contracted

**Execution-based contracts,** in which the public owner specifies the specific details of contract obligations

**Monthly payments to contractors** based on percentage of contract work completed

**Public funding and financing** used to pay project costs

**Project stewardship resides with the public sector.** Overall responsibility for project execution, recurring operations and maintenance, and long-term (lifecycle) costs rests with the public sector

## PUBLIC-PRIVATE PARTNERSHIP

**Integration of two or more phases of a project** from design, construction, operations and facilities maintenance services, under a single contract

**Output-based contracts,** in which deliverables are specified in terms of the outputs, leaving the private sector partner to offer the best solution for meeting the output specifications

**Construction completion risk transferred,** whereby the private firm is only compensated upon construction completion or for achieving pre-defined milestones

**Private financing responsibility,** in which a substantial share of the project is financed through project-specific debt and equity

**Private sector project responsibility,** whereby overall risk of performance is transferred to the private partner, in keeping with public sector priorities and objectives identified up-front

# Common Characteristics of P3s (and definitions)

**Risk allocation**

**Long-term  
contracting**

**Performance-  
based  
contracts**

**Innovation**

**Economies of  
scale**

**Whole life  
costing**

**Competition**

**Greater  
leveraging of  
public funds**

**Task  
integration and  
efficiencies in  
delivery**

**Affordability**

**Value for  
money**

**Complex  
construction**

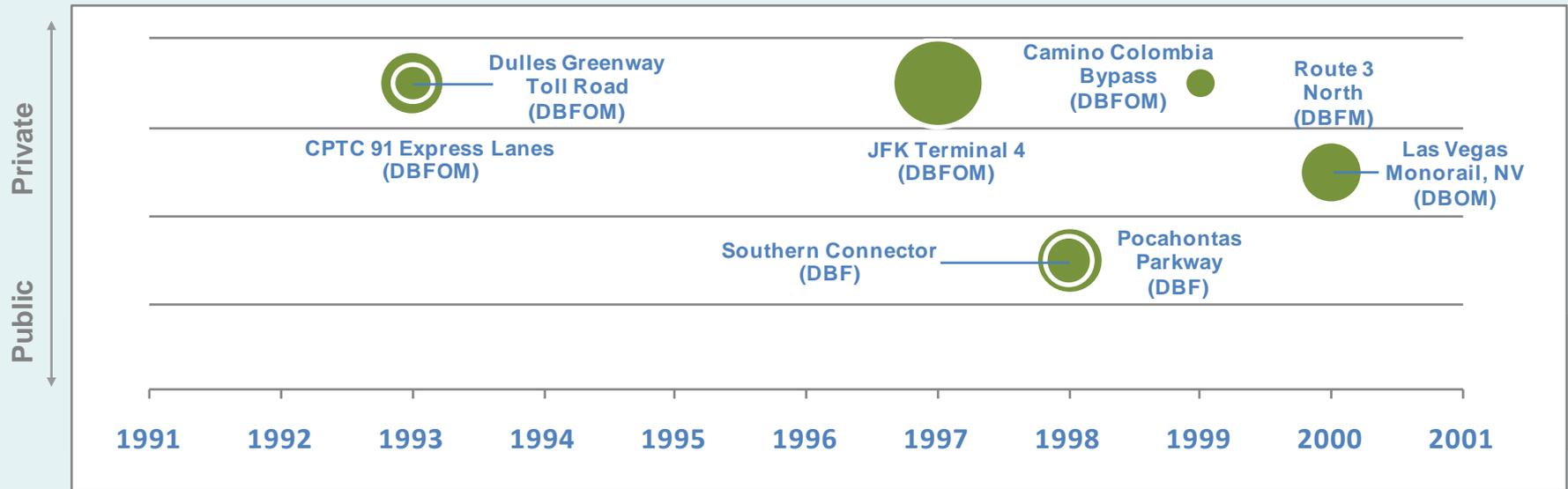
# History of P3 Projects

# The Origins

- Modern Public Private Partnerships were implemented in the 1990s as a result of public debt challenges
- Early P3 projects were “one-off” applications in the UK and Australia with little programmatic framework
- The Private Finance Initiative (PFI) was introduced in the UK, formalizing the first programmatic framework for Public Private Partnerships
- Australia, Canada and other European nations followed suit
- Currently over half of US states have legislation in place allowing for various forms of Public Private Partnerships, and numerous states such as Michigan, Ohio, Colorado and Indiana are exploring broad applications
- To date, more than 1,400 P3 transactions have closed in the European Union, representing an estimated capital value of approximately €260 billion<sup>1</sup>

<sup>1</sup> Source: European Investment Bank, July 2010

# Selected US Public Private Partnership Projects: 1990s

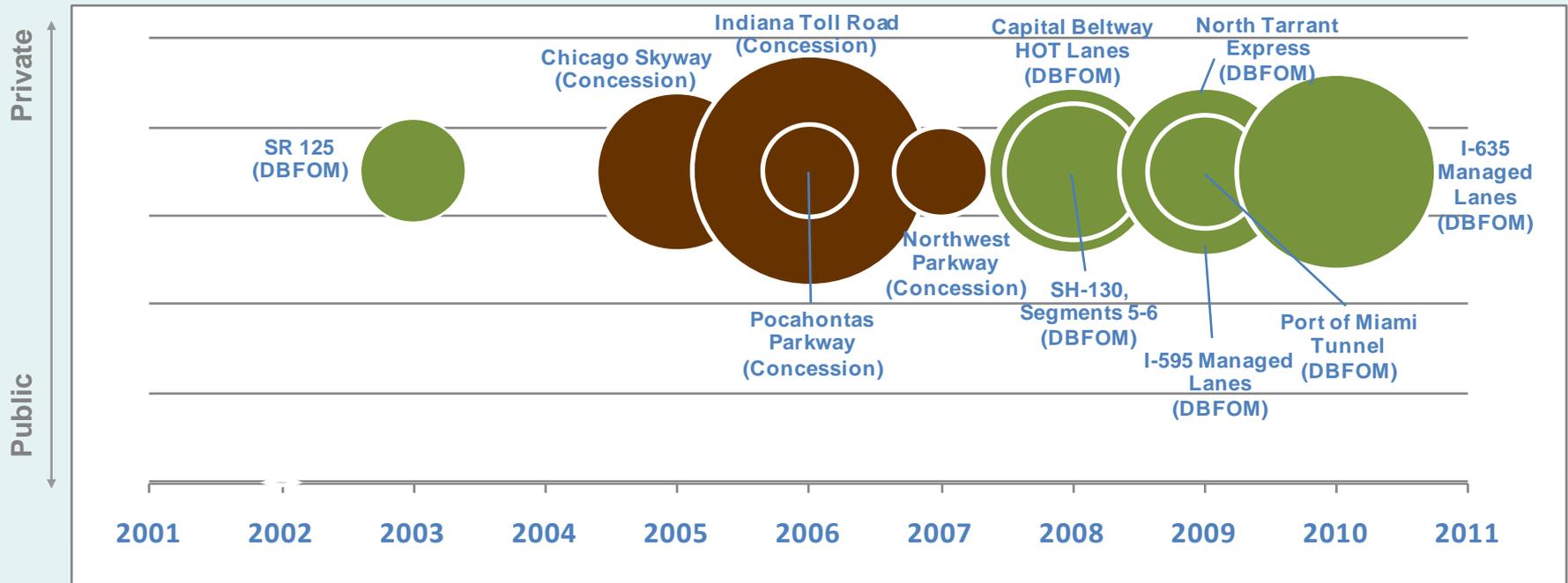


## Notes:

Circle diameter is proportionate to deal value

Green indicates "Greenfield" projects; brown for "Brownfield" projects (asset leases)

# Selected US Public Private Partnership Projects: 2000s



**Notes:**

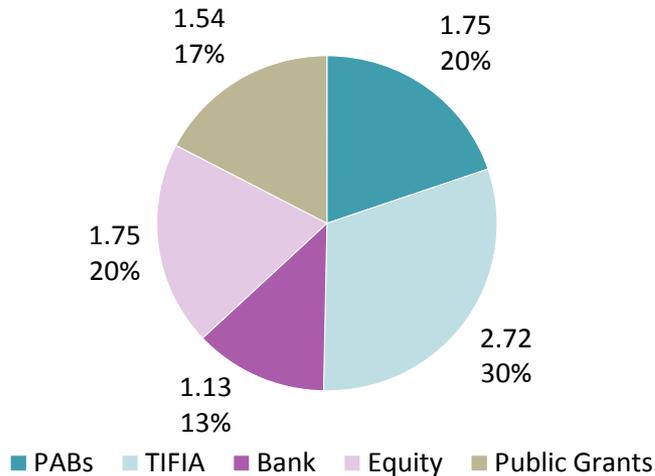
Circle diameter is proportionate to deal value

Green indicates "Greenfield" projects; brown for "Brownfield" projects (asset leases)

# An Active Investor Market Exists for P3 Projects in the US

- Debt capital is available for well-structured projects
- Significant equity capital is on sidelines, with increased competition for quality investments
- Mutually beneficial public/private risk-sharing strategies have evolved

Capital Structure Breakdown for Transactions Illustrated (right)  
(\$ Billion in USD)<sup>b</sup>



## Recent projects in the US

### Presidio Parkway<sup>(a)</sup> (January 2011 – commercial close)

- \$150 million PABs
- \$150 million TIFIA
- \$45 million equity

### North Tarrant Express (December 2009)

- \$400 million PABs
- \$650 million TIFIA
- \$573 million TxDOT grant
- \$427 million equity

### Long Beach Courthouse (December 2010)

- \$442 million bank debt
- \$49 million equity

### SH 130 Sec. 5&6 (July 2008)

- \$686 million bank debt
- \$476 million TIFIA
- \$210 million equity

### IH 635/LBJ (June 2010)

- \$615 million PABs
- \$850 million TIFIA
- \$496 million TxDOT grant
- \$665 million equity

### Capital Beltway I-495 (June 2008)

- \$589 million PABs
- \$589 million TIFIA
- \$470 million VDOT grant
- \$350 million equity

Note: (a) Financial close pending – all figures approximate  
(b) Total amount 8.88 Billion USD

# Federal Funding and Financing

# Innovative Financing Tools

Public Private Partnerships broaden the available financial alternatives

## Traditional Funding Sources:

- User fee revenues
- Sales Tax revenues
- Property taxes
- State funds
- Federal funds

## Traditional Financing Instruments:

- Pay-as-you-go funding
- GO bonds
- Revenue Bonds
- Grant Anticipation Notes (GARVEE)

## Public Private Partnership Commercial Structures:

- Real Toll Model
- Shadow Toll model
- Availability model
- Maintenance and operation
- High Occupancy Toll Lanes

## Public Private Partnership Capital Structure Components:

- Tax exempt bonds
- Private activity bonds
- Taxable bonds
- Bank loans
- TIFIA loans
- Strategic Equity
- Financial Equity

# TIFIA

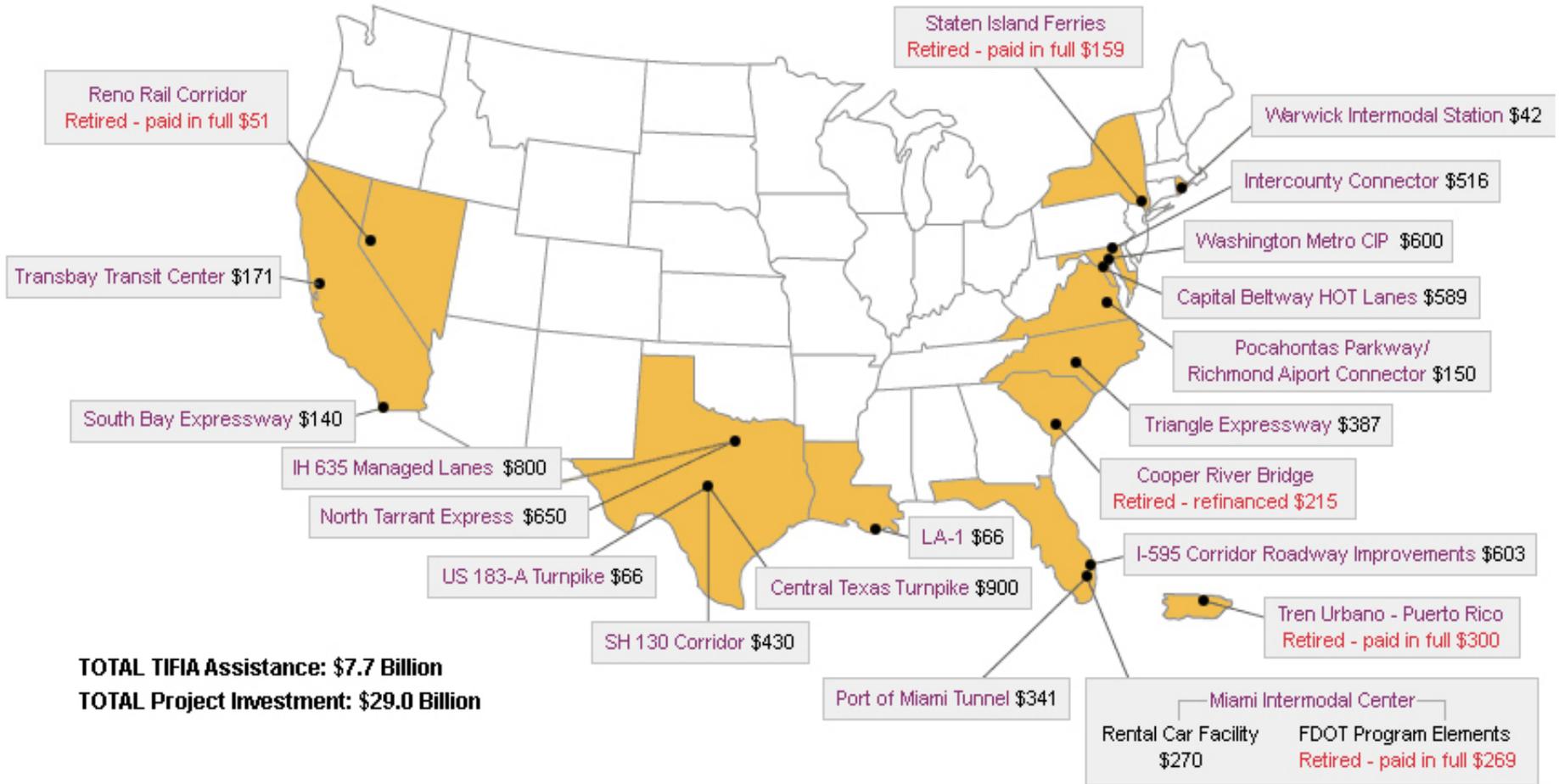
- Form of subordinate, non-recourse project financing
- Subsidized by the Federal government
- Competitive application process
  - In March 2011, 34 projects from 13 states applied for TIFIA loans totaling over \$14B
  - Only 8 projects were invited to submit a formal application
- Favorable terms including base rate set at State and Local Government Series (SLGS) rate (35 year rate ~ 4.3% July 22, 2011)
- Debt service coverage ratio as low as 1.1x
- Can only finance a maximum of 33% of project costs
- Requires:
  - Need a “revenue streams,” although TIFIA need not be investment grade
  - Need federal environmental clearance

***Flexible repayment terms provide significant value, especially for full concession model***

# TIFIA

Eligibility requirements	TIFIA Lending Criteria
Federal eligibility	Eligible to receive federal aid
Environmental	Project is Past the Draft EIS stage of Federal environmental review process
Planning	Included in State Transportation Improvement Program (STIP) and State Transportation Plan (STP)
Cost	Capital cost of at least \$50 million and no more than 33% of state's annual federal aid funds apportionment
Share	Credit assistance must not exceed 33% of "reasonably anticipated" eligible project costs
Ratings	Senior debt rated investment grade
Funding	Revenue streams from user charges or other non-federal dedicated funds

# Approved TIFIA Projects<sup>1</sup>



1 As of Q1 2011

# Private Activity Bonds

- Provides private sector with access to tax-exempt bond financing
- Government “conduit” bond issuer required
- Requires some federal capital money in project and federal environmental clearance
- Pricing examples of PABs:
  - Denver FasTracks PABs – average cost of less than 6%
  - LBJ Express Private Activity Bond Senior Lien – 7% coupon
  - North Tarrant Express Private Activity Bonds – \$400 million issued on December 10, 2009 with average yield of 6.98%

# Screening Process

# Development of a Screening Tool for Washington

## Essential Considerations

- Good Screening Tools assess common, comprehensive criteria
  - Public interest
  - Project viability
  - Risk
  - Numerous others (per following slide)
- Asking the rights questions is key, but it is equally important to:
  - Weigh responses to suit values and objectives of the State
  - Establish clear and objective requirements for inputs to the screening tool for consistency
  - Establish appropriate fatal flaws

## Local Calibration

- Draft criteria will be presented through upcoming material and workshops
- Once the list of criteria is set, we will ascertain and define:
  - Fatal Flaws
  - Weighting of objective criteria
  - Assessment and weighting of subjective criteria
  - Potential legal / legislative hurdles

# Screening Considerations

## Spending need/cost savings

- Part of capital plan/demonstrable need
- Technical innovation
- Affordability
- Provides value for money
- Economies of scale
- Risk transfer
- Timing benefit
- Whole life costing

## Private sector ability to partner

- Current market liquidity
- Private interest
- Return justifies risk
- Suitable size
- Risk tolerance
- Complex construction
- Ability to attract TIFIA, PABs

## Regulatory, legal, and political feasibility

- Regulatory risks, issues, or flexibility
- Need for new or change in legislation
- Environmental issues
- Political risks or issues
- Accounting and tax treatment
- Land ownership issues

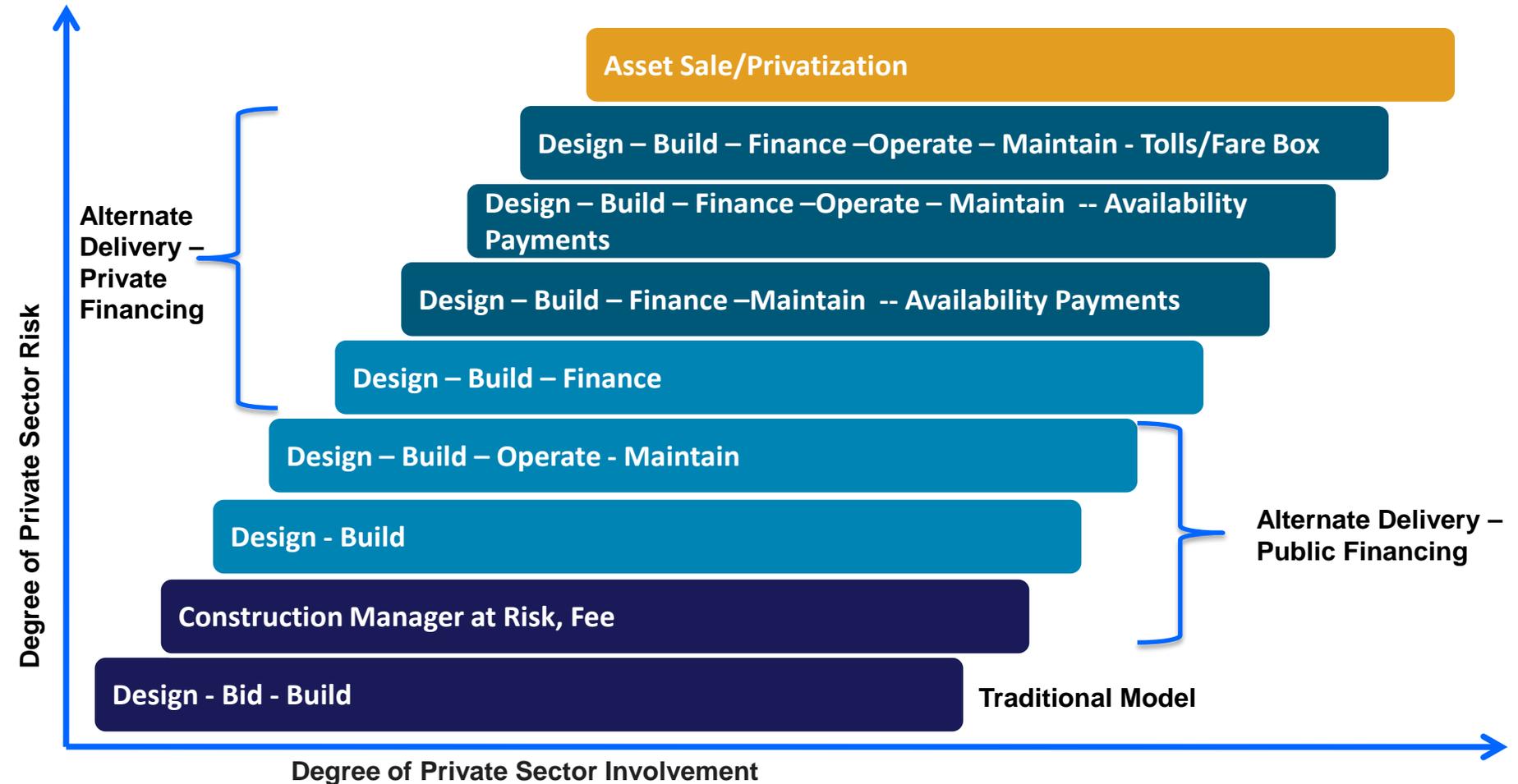
# Risk Allocation

# What is Risk?

# Risk and Responsibility Allocation

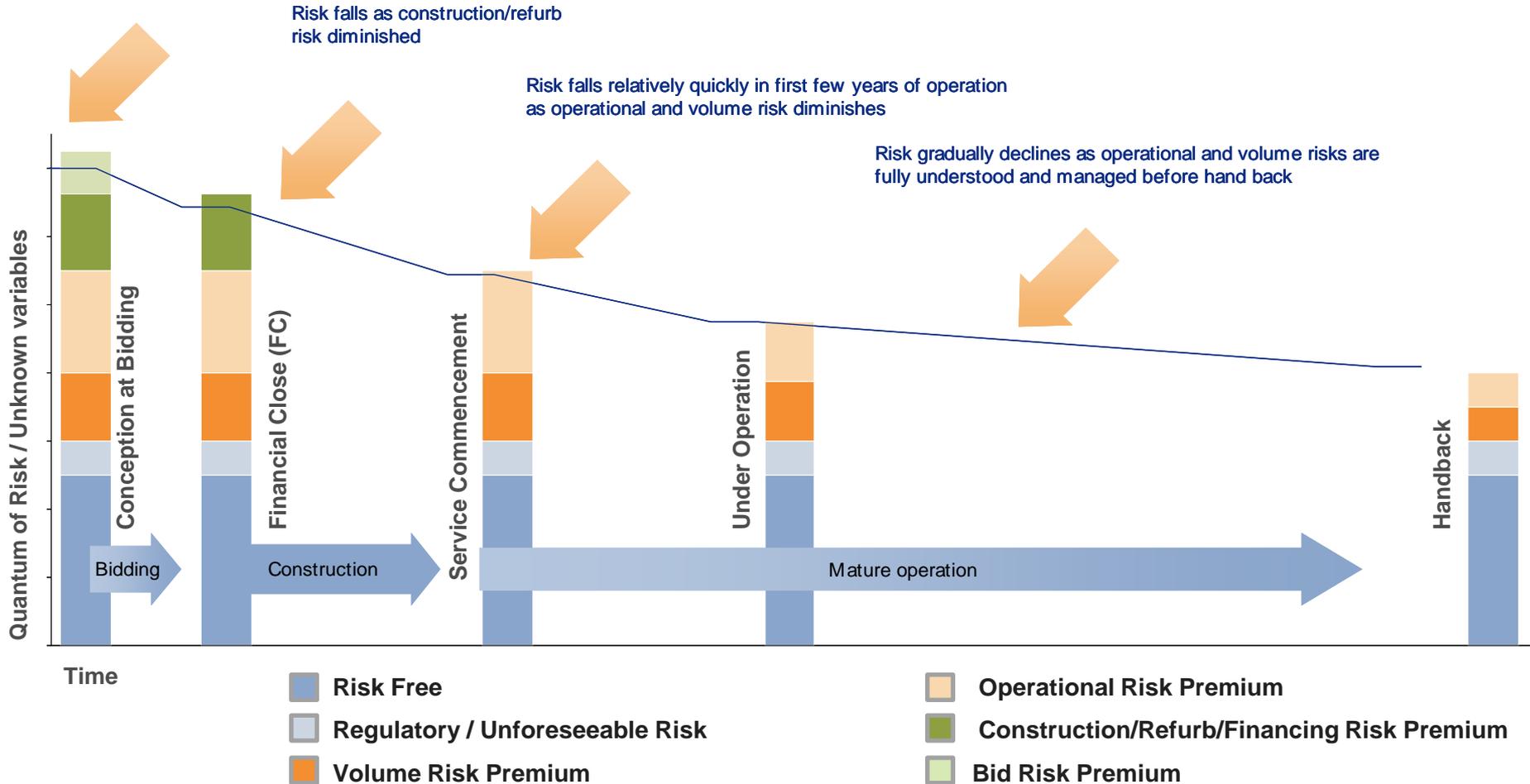
- Who are potential bearers of risk?
  - Developers
  - Operators
  - Private investors – lenders and equity sponsors
  - Facility users and toll payers
  - Sponsor agency
  - Stakeholders
  - General public / taxpayers
- Which party is best placed to manage each risk?
  - Assess information about the likelihood of the risk (experience is key)
  - Manage and mitigate its occurrence and consequence
  - Provide most efficient pricing
- Risk allocation should be reflected in Value for Money assessment

# Risk Apportionment by Project Delivery Option



# Typical Risk Profile of a P3 Project

Risk falls at financial close

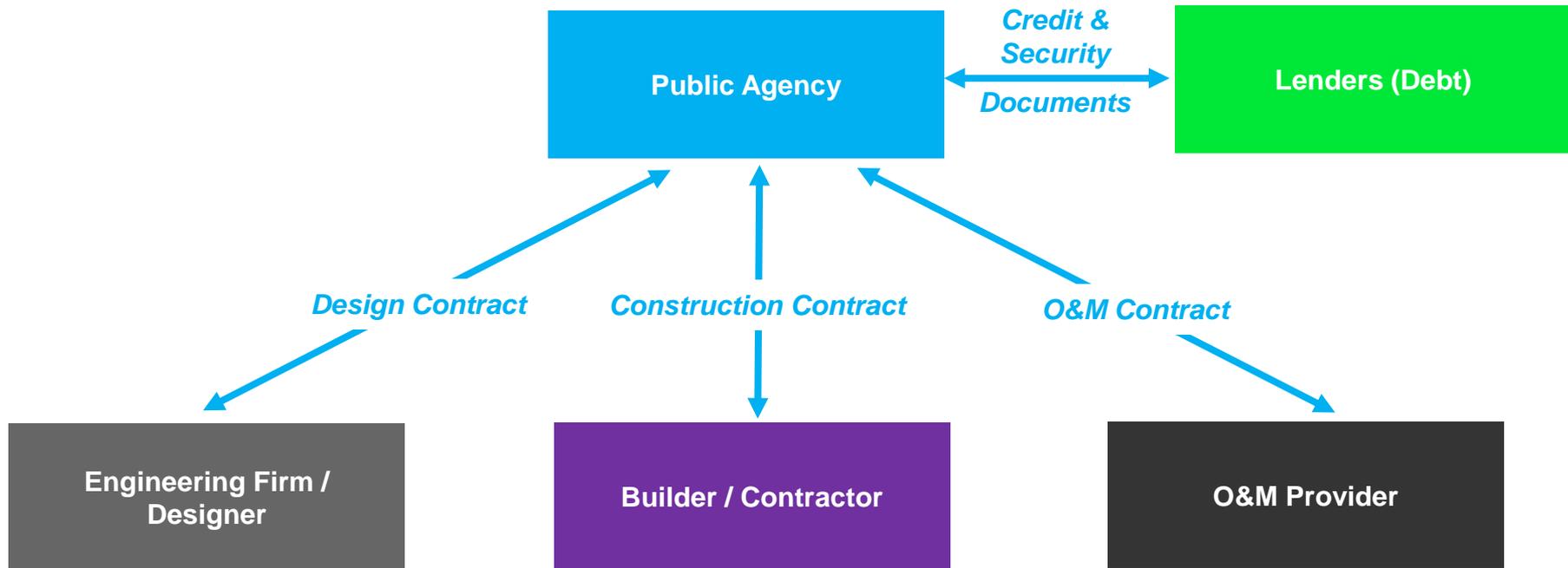


# Risk Assessment - Methodology

- **Undertake a risk assessment workshop with a multi-disciplinary team**
  - Identify specific risks
  - Quantify range of impacts
  - Assess probability or likelihood of specific risks
  - Determine mitigation strategies
- **Risk Mitigation**
  - Reduce the likelihood of risks and related consequences
  - Implication for project scope
- **Risk monitoring**
  - Use of a risk management plan, linked to the risk register
  - Updated over the project life

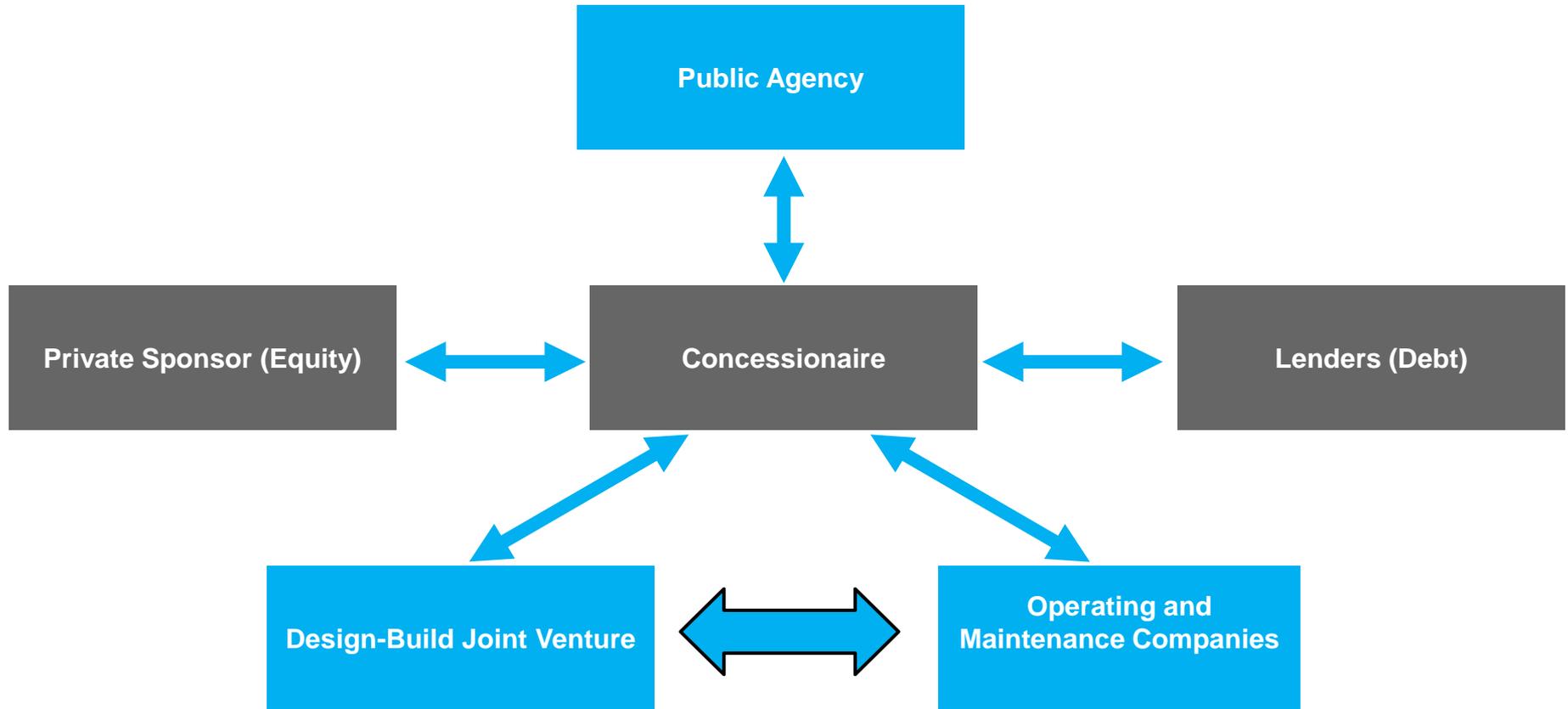
# P3 Structures

# Traditional Comparator (for reference) Conventional Design-Bid-Build Model Structure



Public Agency acts as manager of all contracts and takes all risks related to delivery, financing, and operations of project.

# Basic Public Private Partnership Model Structure (DBFOM)



P3 Agreement governs all Concessionaire responsibilities for the project

# Risk Allocation Defines the Public Private Partnership Business Model

A comprehensive risk assessment and allocation profile will help guide the selection of an appropriate delivery model, ranging from traditional delivery to a full P3 concession.

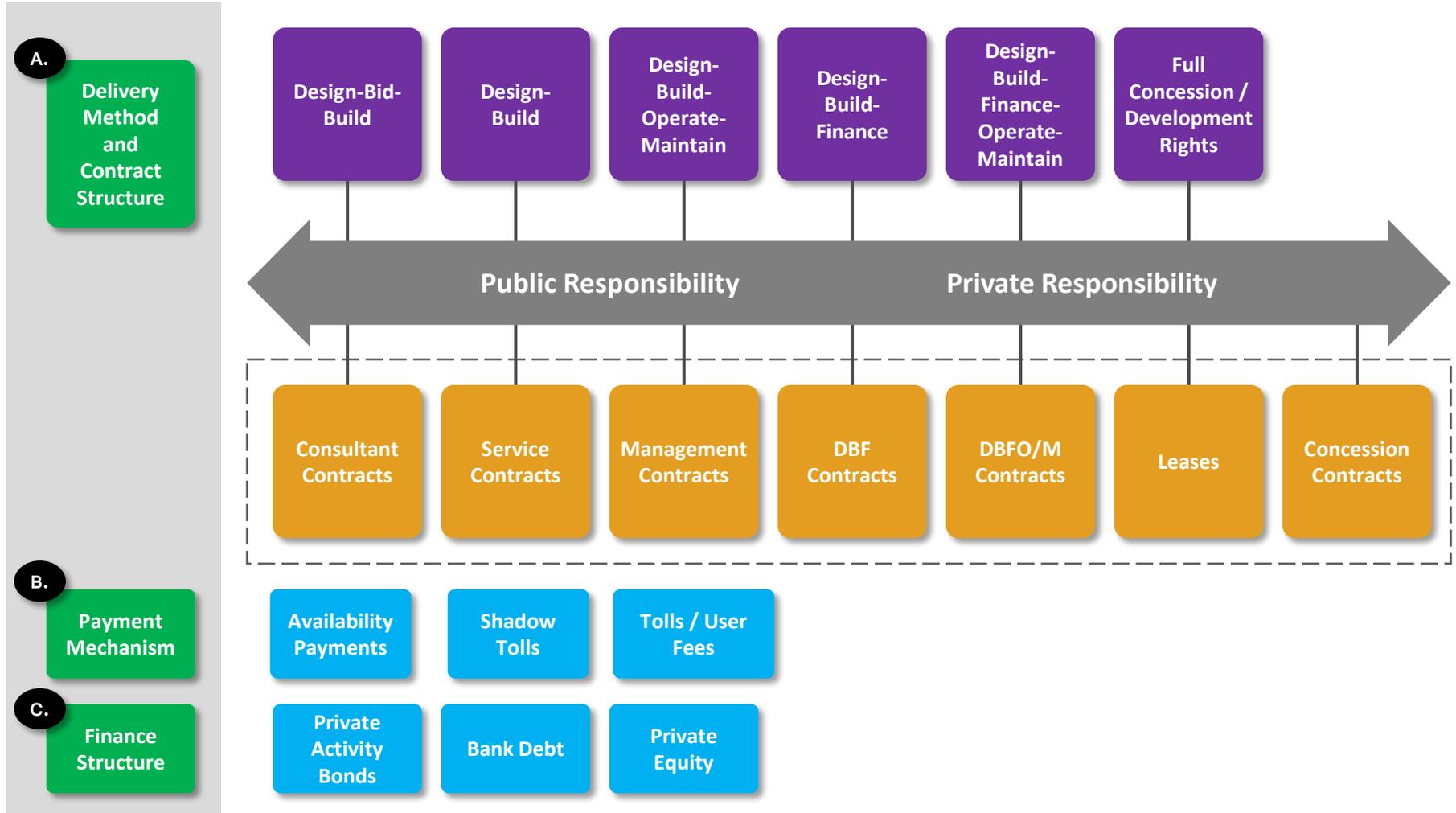
Key: ○ Public Sector takes (pays) Risk

● Private Sector takes (pays) Risk

	Design	Construction	Operations	Maintenance	Financing	Ridership	Collection
Design Bid Build – Traditional	○	○	○	○	○	○	○
Design Build	●	●	○	○	○	○	○
Design Build Maintain	●	●	○	●	○	○	○
Design Build Operate Maintain	●	●	●	●	○	○	○
Design Build Finance Operate Maintain (Availability Payment)	●	●	●	●	●	○	○
Full Concession (Real User Fee)	●	●	●	●	●	●	●

Risk Transfer

# Project Delivery, Procurement and Finance Considerations



## Design-Bid-Build (DBB)

**Contractor hired for discrete scope of work**

- Low bid selection

**Public partner takes design and construction risk**

- Limited potential for private sector innovation (e.g. value engineering)
- Change orders common
- No cost or schedule guarantees

**Public sponsor retains strong oversight role**

- Specific laws may require bidding of individual trade work

**Public sponsor retains obligation to fund**

**Public sponsor retains operational and maintenance obligations**

## Design-Build (DB)

**Design engineer and contractor hired under single contract**

- Selection generally based on best value using 25-30% design document

**Private partner takes design and construction risk**

- Provides basis for private sector innovation
- Allows for cost and schedule certainty

**Public sponsor establishes single point of contact**

- Public sponsor typically sheltered from design and construction disputes

**Public sponsor retains funding and finance obligations**

**Public sponsor retains operations and maintenance obligations**

# Design-Build-Finance (DBF)

## Reduces delay in construction while waiting for funding

- Reduces potential for reallocation of funds
- Eliminates risk of project costs escalating while project delayed

## Existing funding sources

- Uses existing methods of funding project
- Uses budgeted funds and will generally not require new or special debt
- Allows some private sector innovation in financing

## Can be used with smaller projects

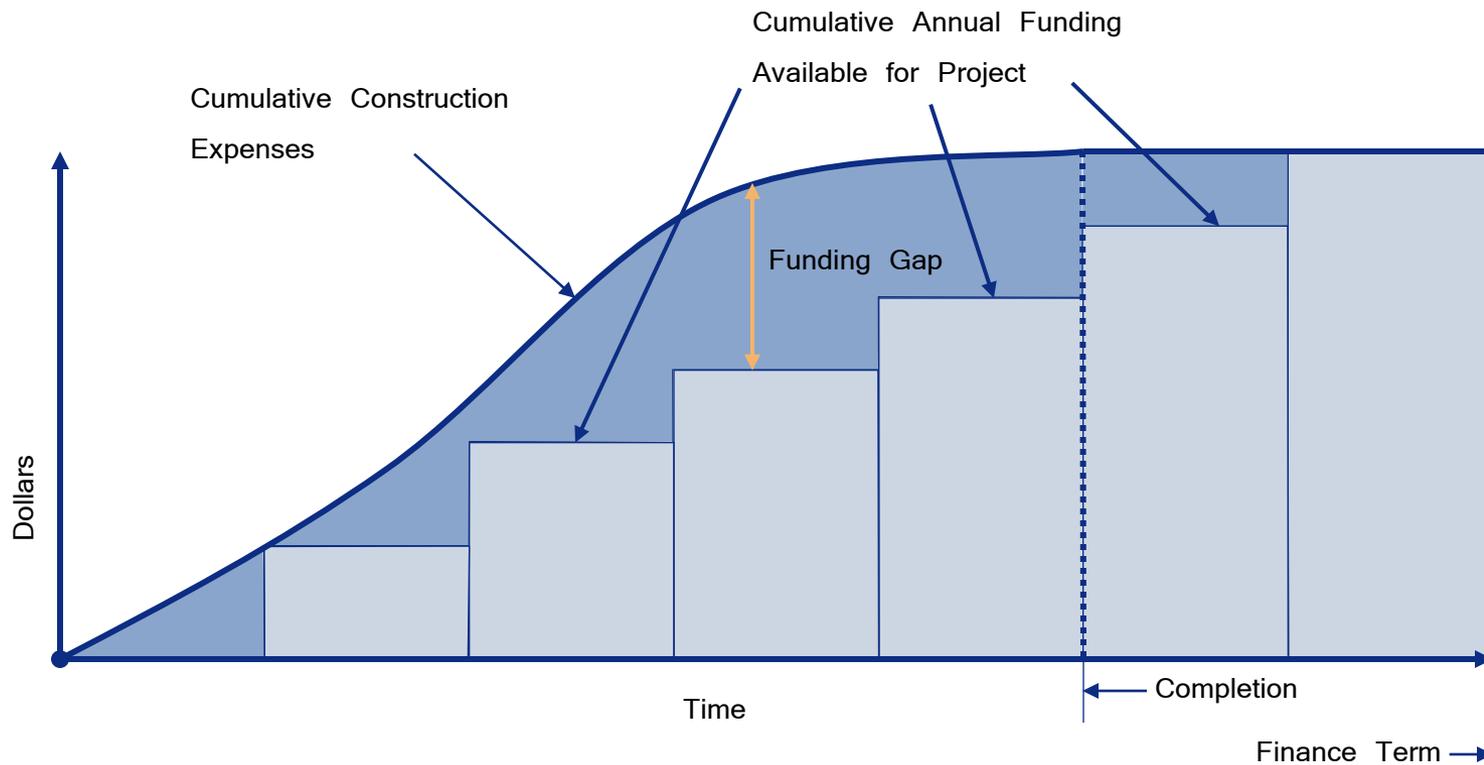
- Smaller project size opens up market to smaller firms who may be interested in larger PPP projects

## Financing is straight forward

- Based on DOT credit
- Short term in nature

# Design-Build-Finance (DBF)

- The DBF approach uses contractor financing to incentivize early project completion
- Contractor at-risk financing is used to fill construction period funding shortfalls



# Design-Build-Operate-Maintain (DBOM)

Adds O&M obligations to DB structure

Term of O&M obligations may determine financing alternatives

- IRS “Qualified Management Contracts” allow tax-exempt finance
- Maximum term of 15 years for road projects
- Taxable debt or Private Activity Bonds suitable for longer term contracts

Public sponsor responsible for revenue and financing

May be suitable for facilities with specialized O&M requirements

# Design-Build-Finance-Operate-Maintain (DBFOM)

Adds long term financing to DBOM structure

Private partner responsible for delivering financing

Public sponsor may take revenue risk

Applicable to both revenue and non-revenue facilities

May be structured as “Availability” concession

- Private partner responsible for project delivery and facility availability
- Periodic payments conditional on achieving contract terms

Suitability

- Where transfer of revenue risk may not be in public interest

# Revenue Concession

## Life cycle risk transfer to the private sector

- Comprehensive risks of design, construction, revenue, finance, operations, maintenance and capital renewal
- May include capacity expansion responsibility

## Public Sponsor retains control through contract structure

- Rate setting
- Operational and performance standards

## Potential financial benefits to public sponsor

- Upfront payment
- Revenue Sharing
- Unplanned refinancing
- Excess revenue

## Examples of P3 Model Payment Mechanisms

**Revenue/User Fee (Toll) Based** – Private sector collects or receives project revenues which serve as the sole source of compensation for operations, maintenance and capital costs. Concession agreement can set initial tolls and/or restrict increases in toll rates.

**Availability Payment Based** – Private sector is compensated on a periodic basis (e.g. quarterly or annually) only to the extent the project is delivered, available and performing as per the concession agreement. Public sector may choose to toll the facility and use tolls to offset availability payments.

**Shadow Fee/Fare** – Hybrid model which allows the public sector to set revenue policy and rates, but conveys project demand risk on the private sector. Specifically, the private vendor is paid a fixed or variable fee for each use of the facility, thus accepting demand risk but not revenue setting or collection risk.

# Revenue/User Fee Based Model

## Attractions

- Significant proceeds may go to the public sector upfront
- New project company raises and repays debt
- The public sector transfers revenue, construction/CapEx, operational and maintenance risk to the private sector
- Integrated CapEx and OpEx planning may allow for further efficiencies

## Issues

- Regulatory framework required to ensure policy considerations are heeded w/re to tolling levels and that asset and service quality are maintained

# Typical P3 Financing Structure

## Traditional Funding

### Capital Structure

- 100% debt financed
- General Obligation Bonds
- Tax Backed Revenue Bonds
- Tax Increment Financing

## PPP Funding

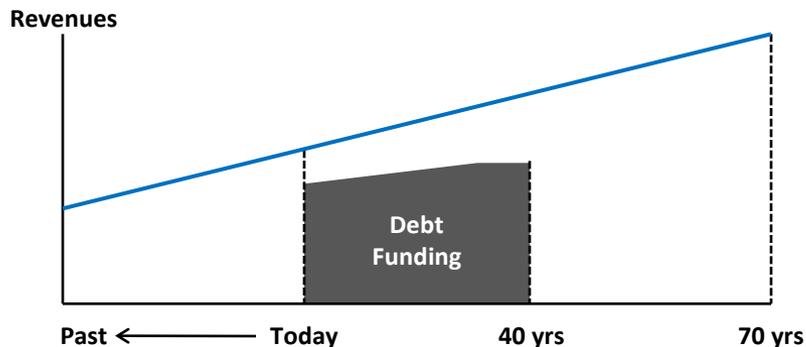
### Capital Structure a mix of

- Senior and Subordinate/Mezzanine Debt
- Equity

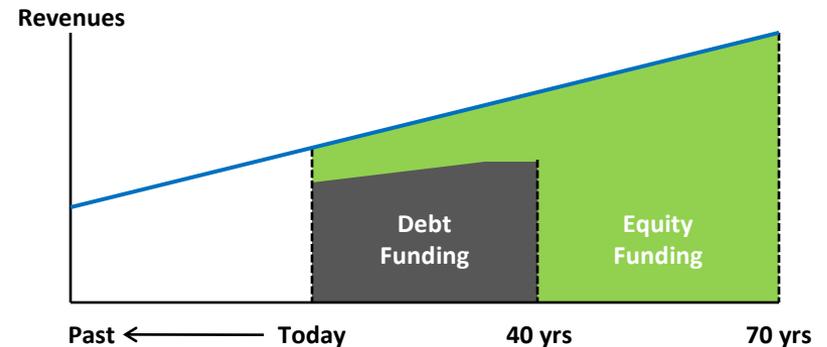
### Debt may consist of

- Bonds (PABs, Taxable Bonds, etc.)
- TIFIA Loan
- Railroad Rehabilitation & Improvement Financing (“RRIF”)
- Bank Debt

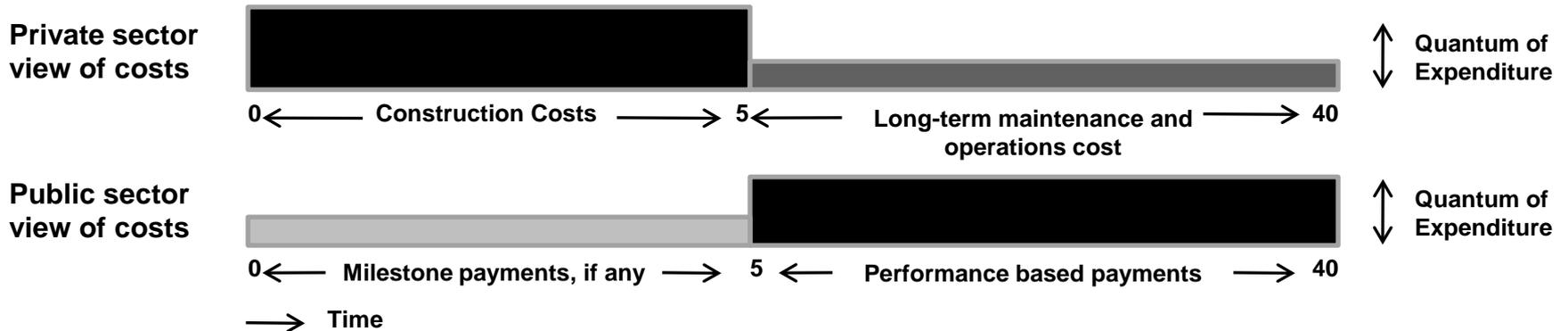
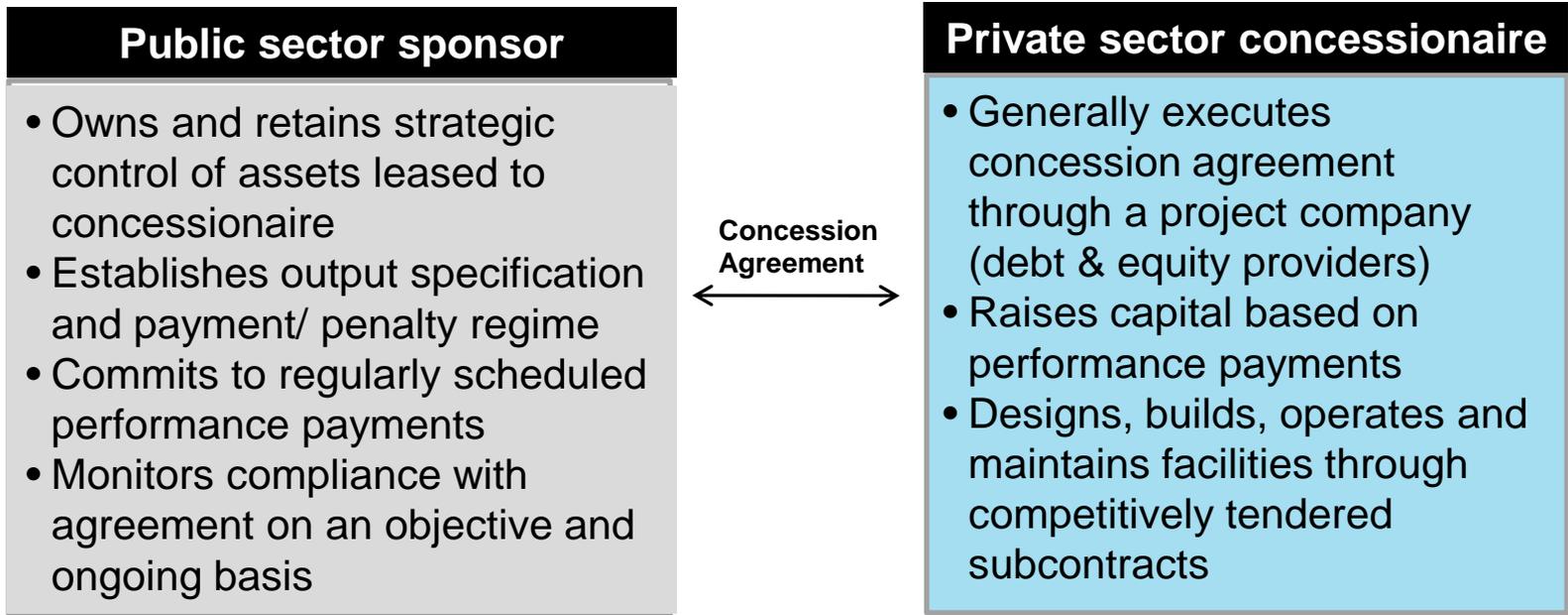
*Traditional Structure*



*Alternative Structure*



# Availability Payment Model



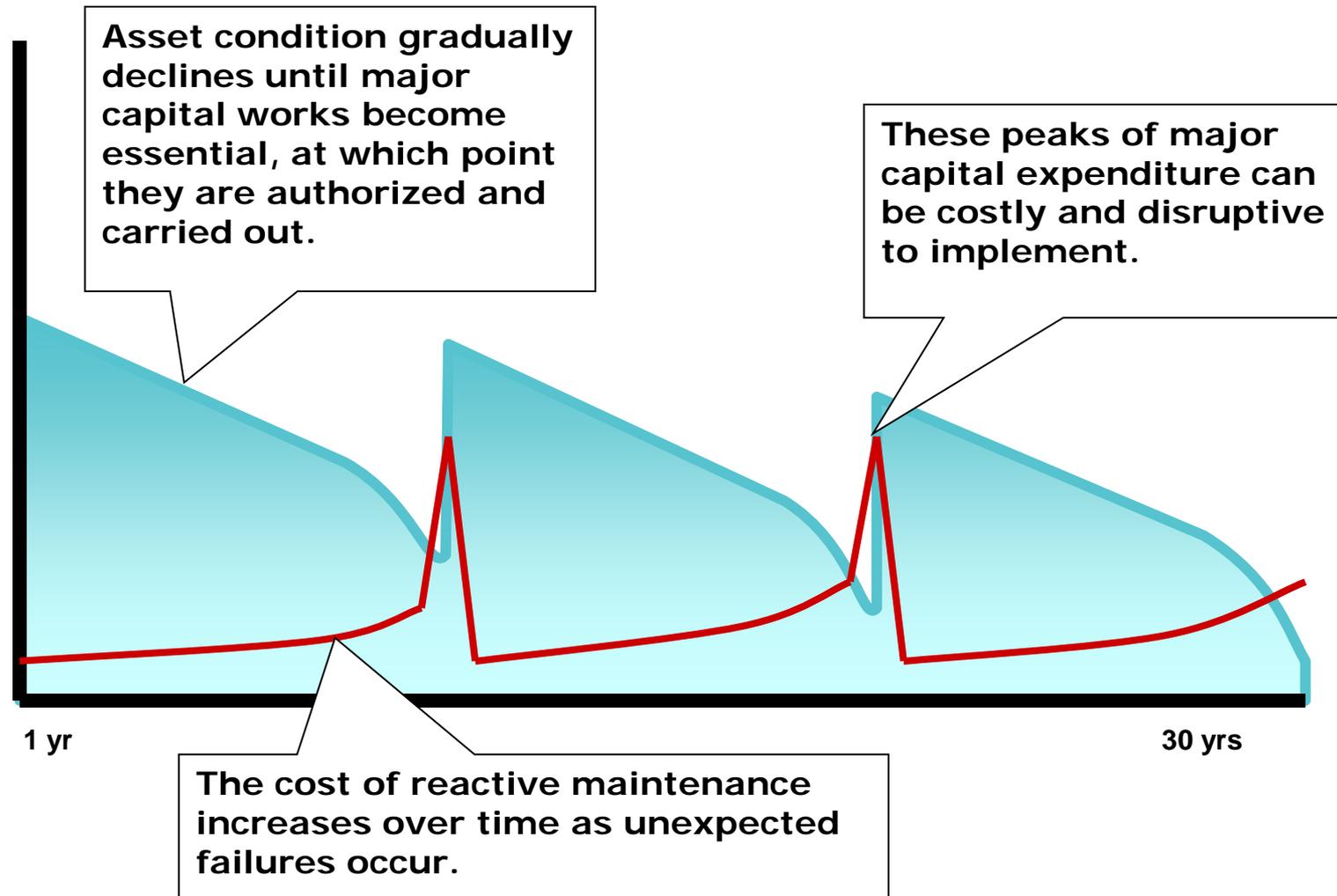
## Availability Payment Model (cont'd)

- Public entity makes periodic, pre-established payments to private concessionaire in return for project delivery and ongoing performance
- Payments are made in accordance with availability of facility as well as quality of service provided
- Effective for projects lacking standalone financial feasibility
- Encourages private sector to plan and manage design, construction, finance and maintenance programs as efficiently as possible

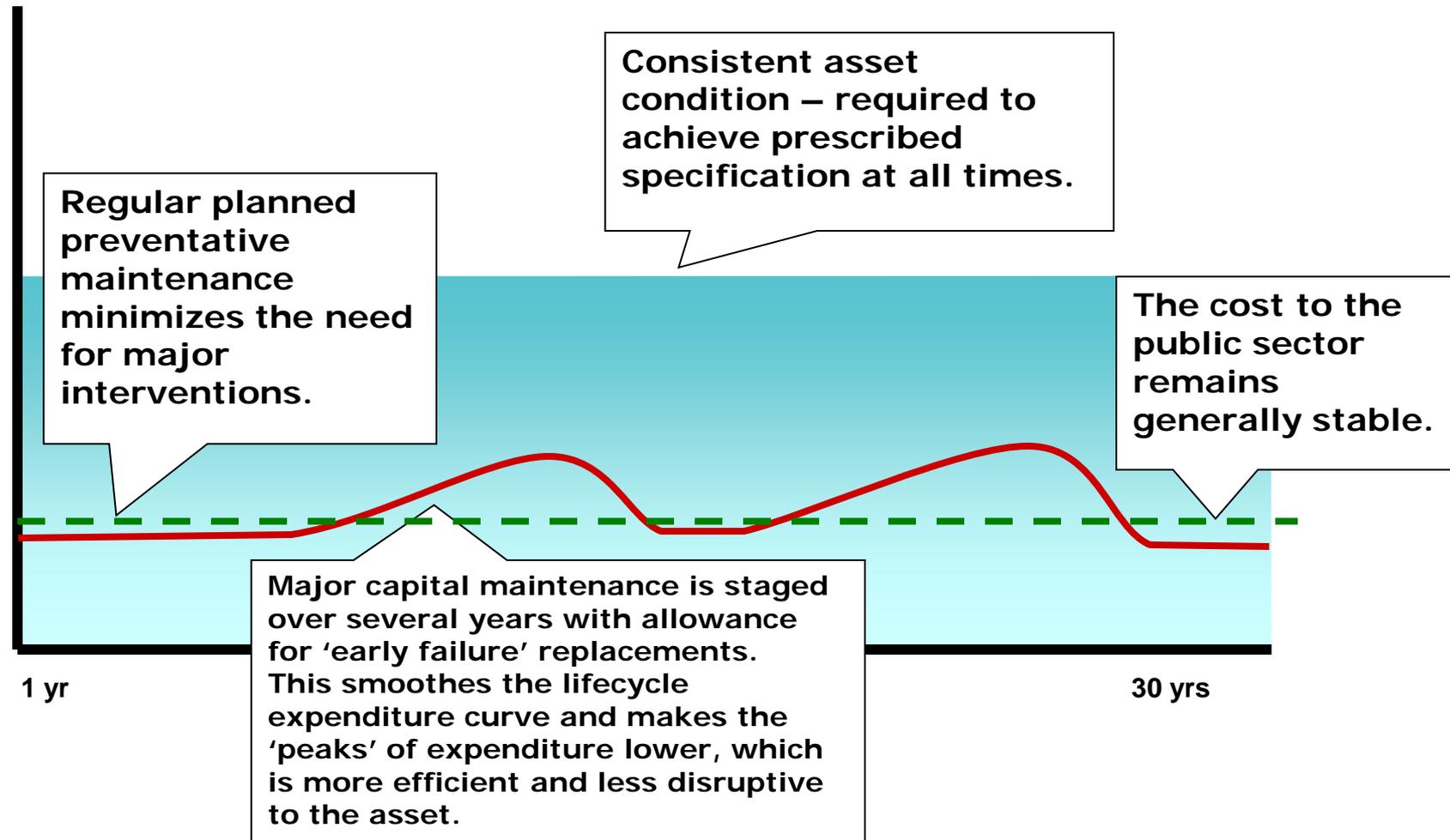
## Availability Payment Model (cont'd)

- Developer may receive two types of payments:
  - Milestone payments/Final Acceptance Payments
  - Availability payments
- Milestone payments
  - If applicable, the largest milestone payment is generally paid at construction completion
  - Milestone payments may be paid from:
    - Available public funds
    - Public debt proceeds
  - Milestone payment amounts determined with reference to agency cash flow considerations

# A Conventional Lifecycle Profile



# Potential Public Private Partnership Lifecycle Profile



# Tolling –Context & History

- The very first long-distance roads in the US were tolled, with their successors forming parts of toll road and turnpike systems on the US east coast
- The interstate highway program led to a national network of free-to-use highways that transformed the US and made free highways standard across much of America
- In the present, many states and local agencies in regions with a limited history of using tolls are considering tolling as a component of future transportation funding
- Technology is transforming the operations of tolling
  - From cash payments at staffed toll barriers
  - To cash payments with automated payment machines
  - To cashless “tag” payments with toll barriers
  - To high-speed open road tolling with cashless “tag” payments
- New technologies offer the prospect of significant cost savings
  - As with other IT equipment, costs are trending downwards with time
  - Utah DOT last week agreed a price of \$1.69 per toll tag, the cheapest price yet seen
  - Significant savings in costs per transaction can be achieved relative to manual cash toll collection

# Managed Lanes – Established Projects



- Conversion of HOV lanes to “High Occupancy Toll” (HOT) lanes
  - Free or reduced prices for carpools
  - Tolls charged to single-occupancy vehicles
- SR91 Express Lanes, CA
  - Opened in 1995 as concession
  - Reverted to public ownership in 2003
- Other public-sector projects
  - I-15 San Diego, CA
  - Katy and NW Freeway, TX
  - I-384, Minneapolis, MN
  - I-25 Denver, CO
  - SR167, Seattle, WA
  - I-595, Fort Lauderdale FL
  - 95 Express, Miami, FL
- Capital Beltway, LBJ and NTE projects currently under development as P3s

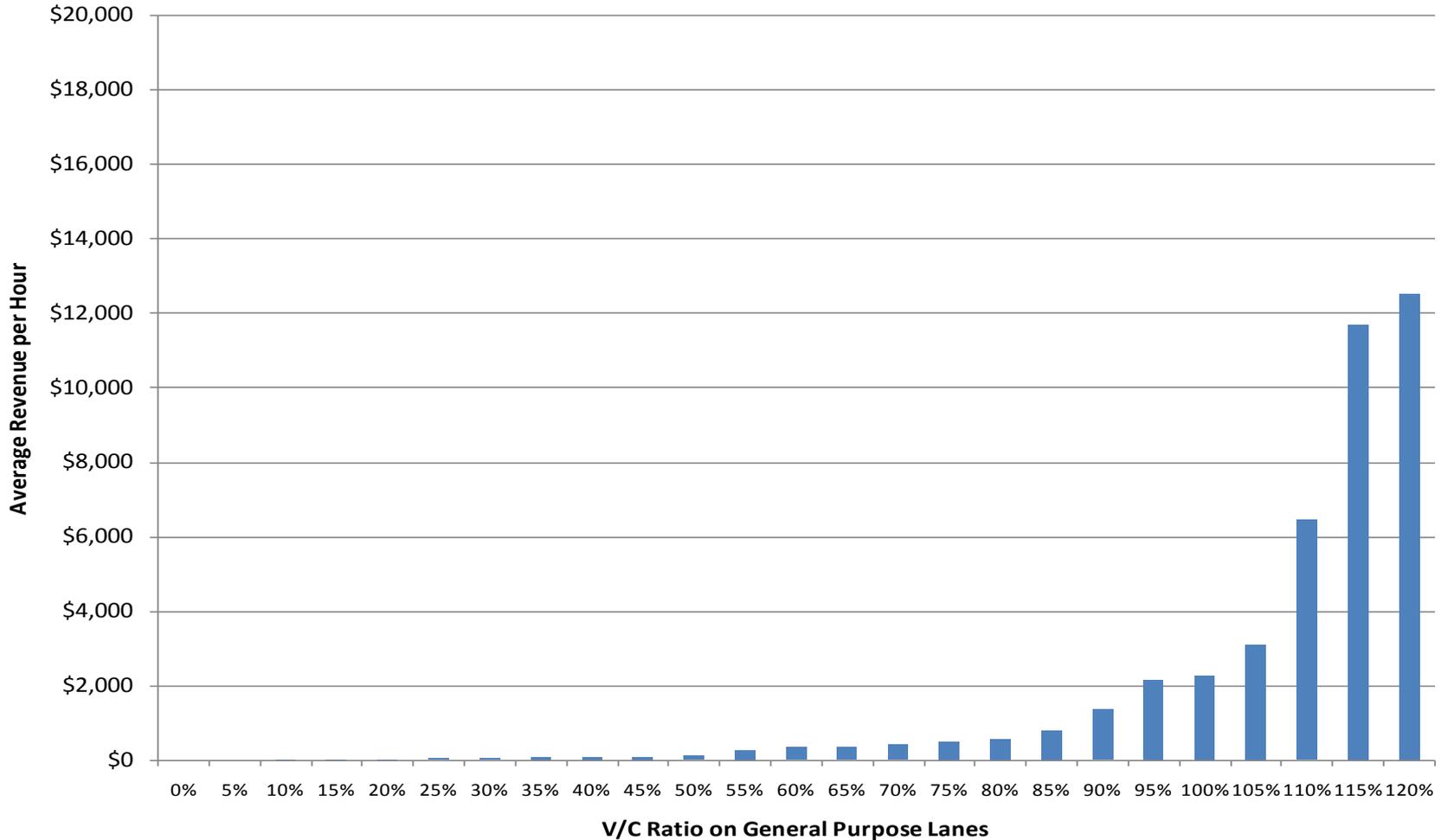
## Dynamic Pricing – What is it?



- Tolls are set dynamically to ensure *free-flowing traffic*
  - Real time traffic and speed data is collected
  - If the lanes are too crowded or there is spare capacity then tolls are adjusted upwards or downwards
  - Electronic signs communicate toll prices to drivers
  - Toll collection uses ORT – drivers do not have to slow down to pay
- Many projects moving from pre-published toll schedules to dynamic tolls that vary based on live traffic conditions to ensure free-flowing traffic

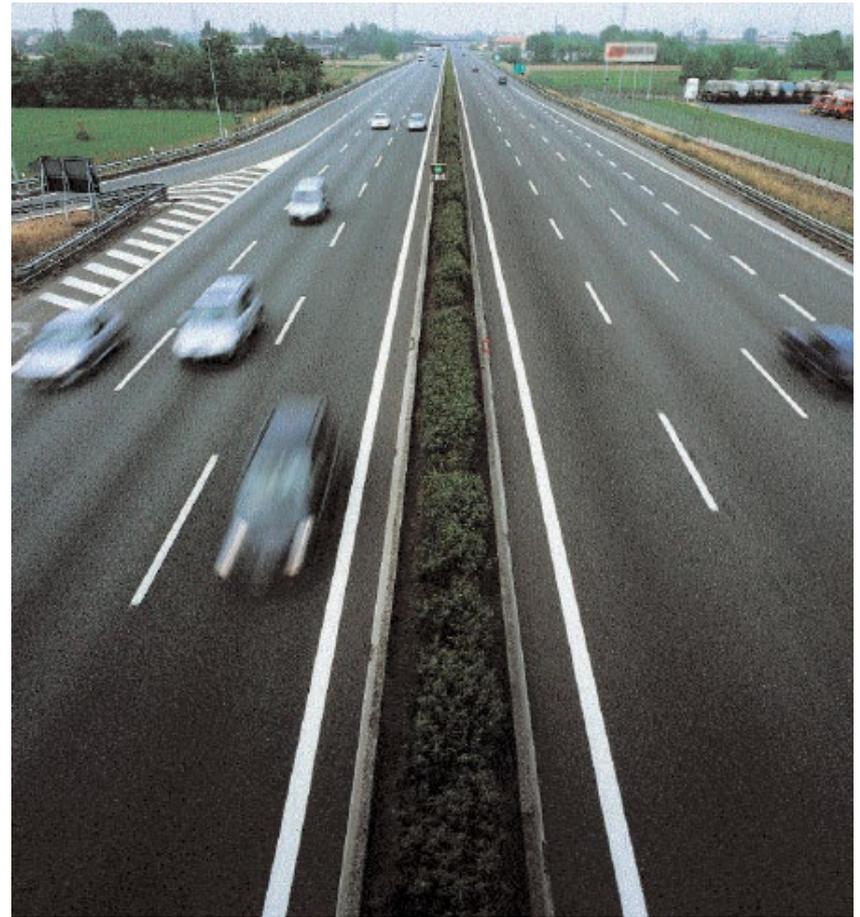
# Project Revenues – Sensitivity to Congestion

Average Revenue per Hour Dependence on V/C Ratio



## The Role of Tolling in Project Funding

- Toll roads produce revenues that can contribute to project costs
- Managed Lanes toll to maintain free flowing traffic, revenues are a side product rather than the main goal
- Managed Lane projects under development have generally required a subsidy, even on high-demand corridors



# Public Perception of Managed Lanes

- Prior to opening
  - Concern about equity of access, especially for lower income groups and “Lexus Lanes” branding by opponents
  - Uncertainty about how dynamic pricing will work in practice in relation to safety & price awareness
  - A marketing effort is recommended on behalf of the project to educate the public on what it is and how it will work
- After opening
  - Public support has generally increased significantly once project benefits become apparent
  - Users learn to treat a project as “congestion insurance” and appreciate its value
  - Where projects have been implemented, public support has grown. Miami FL and Orange County CA have strong support for extensions to the existing projects

# **Value for Money Analysis**

## Overview

- Introduction to the concepts of Value for Money (VfM)
- Measuring VfM: The Public Sector Comparator
- UK's revised approach (2006)
- Drivers of good VfM in P3 projects
- Conclusions

# Introduction

## What is Value for Money?

*“The optimum combination of whole-of-life costs and quality (or fitness for purpose) of the good or service to meet the user’s requirements. VfM is not the choice of goods and services based on the lowest cost bid.”*

- VFM analysis:
  - Considers the potential outcomes of alternative procurement options
  - Measures savings across whole-life costs, not lowest-bid costs, thus considering life-cycle efficiencies
  - Quantified through a risk-adjusted analysis that compares traditional procurement options with selected alternative procurement options

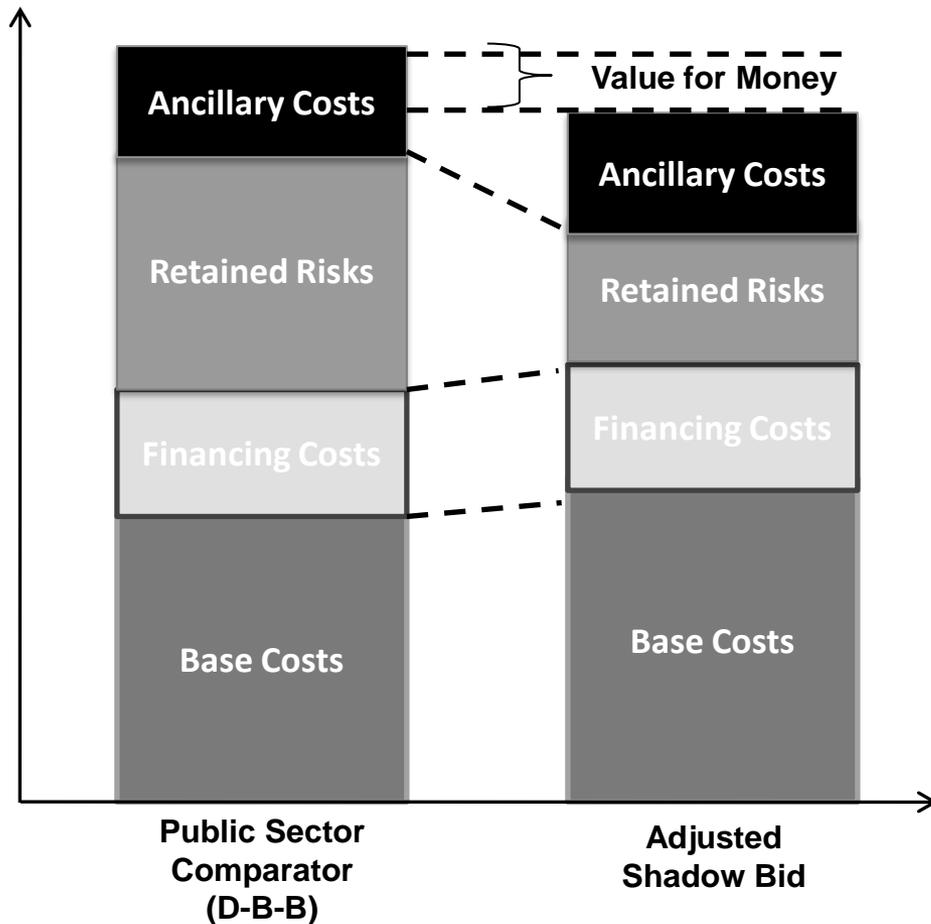
## VFM & the Delivery of Public Service

- **Starting Point:**
  - Major capital investment options
- **Desired End point:**
  - Delivery of the sought-after benefits (at the right price)
- **Achieved (in part) by:**
  - Optimum and enforceable risk allocation to the private sector partner (at the right price)
  - Competition

# Public Sector Comparator Methodology

- **Policy / legislative context**
- **Advantages – helpful with political /public perception/ presentation issues**
- **Challenges:**
  - Timing of final output does not help with decision making process
  - Reliant on a single-point, cost-based test based on Net Present Values
  - Needs empirical data and sector experience (limited at start of programme)
  - Reliant on assumptions that can be manipulated (e.g. optimism bias calculation)
  - Danger of double counting

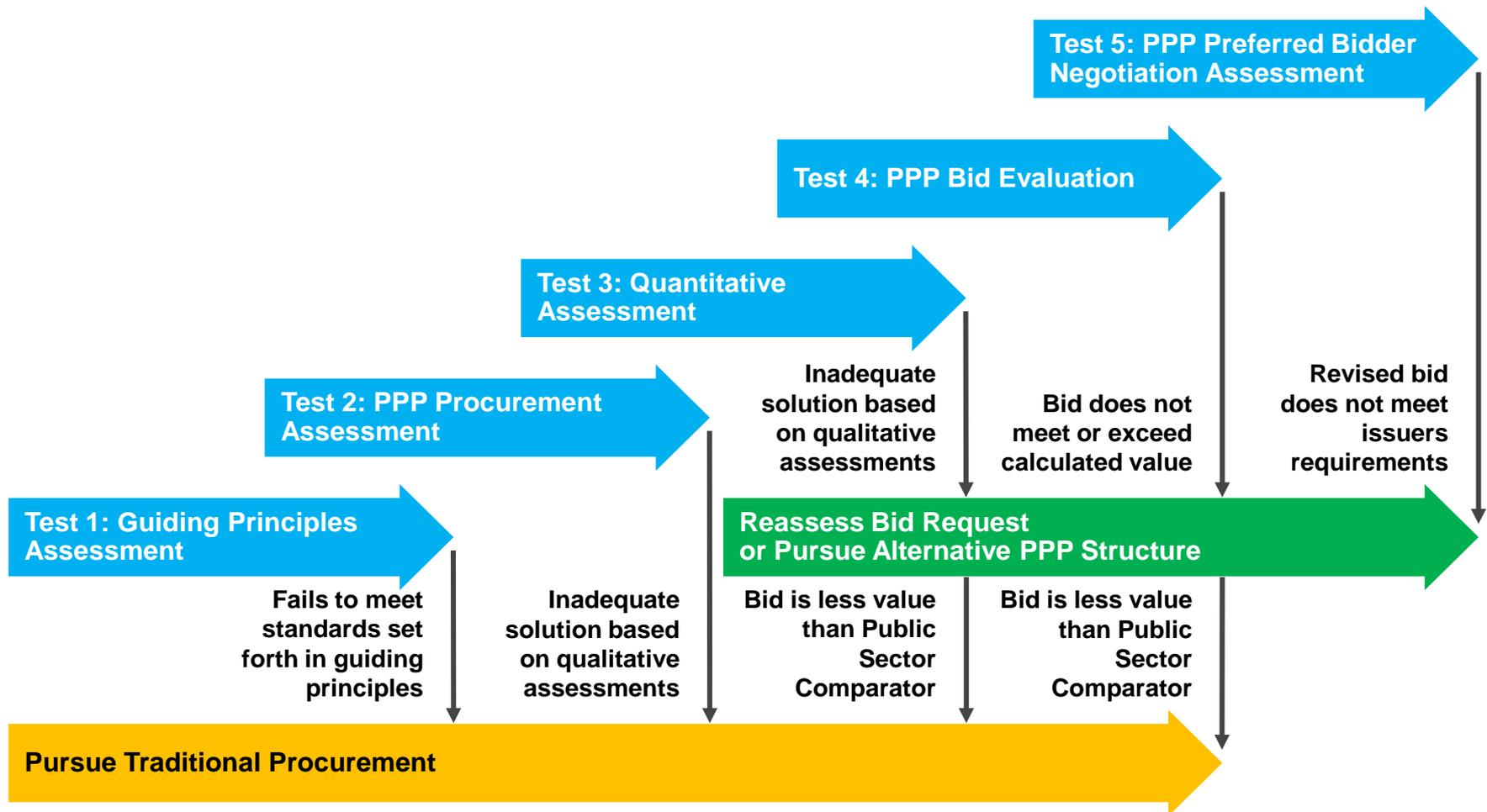
# Where is Value for Money Generated?



## Potential drivers of savings:

- Optimal allocation of risk
- Design and construction efficiencies
- Focus on whole life costs
- Integrated planning and design
- Private sector management and control

# Assessing Value for Money



## Common VfM Drivers

- **Optimal Risk Allocation** – risks should be transferred to the part best able to manage or mitigate that risk
- **Focus on Whole Life Costing** – ensuring whole life costing, not just up-front costs, ensures consideration of operating and refurbishment costs
- **Integrated Planning & Design** – early consideration of operational aspects of the design ensures cost savings in the provision of facilities services
- **Use of Output Specifications** – describing required output, without prescribing a solution, allows bidders to innovate and reduce costs
- **Sufficient Flexibility** – ensuring sufficient flexibility in long-term contracting structures will allow changes to be effected at reasonable costs
- **Proper Incentives** – both rewards and deductions for performance should serve to properly incentivize the parties
- **Long-term Partnerships** – contracts should occur over a period which can be reasonably predicted, while maximizing gains from risk transfer
- **Managing Scale and Complexity in Procurement** – procurement costs should not be disproportionate to the underlying project

## Generators of Long-Term VfM

- Establishing and maintaining competitive tension throughout the bidding process;
- Providing incentives to the private sector for the delivery of quality services;
- Encouraging innovative delivery solutions;
- Offering incentives for the benefit of both parties (e.g. periodic cost benchmarking and sharing mechanisms); and
- Entering into a long-term partnership contract, to provide a degree of certainty of cost to government and revenue security to the bidder.

# VFM Assessment Process

Three step process for assessing VFM:

## 1. Establish baseline project costs

- Based on cost-consultant estimates or known operating results

## 2. Conduct risk analysis

- Comprehensive risk analysis, including quantification, completed across universe of project-related risks

## 3. Compare total project costs

- Considers retained risks and total life-cycle costs of the project under traditional and alternative delivery methods

# Baseline Costing

Two types of baseline costing will apply:

- Construction & Operating Estimates
  - Greenfield development will rely on the capital costs estimates provided by quantity surveyors
  - Operating costs will be estimated based on comparable projects
- Known Operating costs
  - Where an existing service business is operating a business-as-usual baseline can be established

# Risk Analysis

Risk Analysis includes:

- Identification of the universe of applicable risks
- Quantification of impact cost for each risk
- Estimation of probability of occurrence for each risk
- Resulting probability weighted risk cost equation:  
**= Base Cost x Impact (of risk) x Probability (of risk)**
- The sum of all of these risks results in the total risk weighted project cost

# Typical Risk Allocation

Risk Category	Project Sponsor	Contractor/Project Company
Design	Scale and scope sufficiency and user directed design change risks	Completeness, conflicts and coordination risks
Site condition	Unknown geotechnical, environmental or archaeological risks	Known geotechnical or environmental conditions
Construction	Owner delays, unknown conditions and resulting impact on schedule and costs	All other construction risks including damages, defects, deficiencies, scheduling errors, safety
Resource availability	Few risks	Labor supply, materials and equipment shortages risks
Equipment	Selection and procurement risks	Installation and coordination risks
Permits and approvals	Federal, State and Local permits/approvals	Building code and occupancy permits
Financial	Cost of any scope change	Cost of financing, interest rate risk, all other financial risks
Labor	General strikes	Trade strike or isolated labor disruption
Policy or legislation change	Most risks	Few risks
Operations	Limited demand risk and mandated change in service requirements	Assigned demand risks and all other operational risks
Force Majeure	Shared	Shared

## Comparing Models

- A risk-adjusted comparison of total project costs (to the sponsor) is compiled and compared across procurement options
- Comparison of options considers
  - Project contract's effective risk transfer
  - Differing potential cost of inputs, such as costs of financing
  - Time value of money, through discounting future obligations to measure all costs in today's dollars

## Methodology

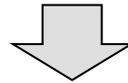
- Balance between qualitative and quantitative assessment
- Considers project and market features
- Embeds an evidence-based approach
- Uses generic quantitative models for the PSC and “should cost” PFI solution
- Models include technical adjustments (Optimism Bias, tax etc)

# Qualitative Assessment

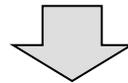
- **Viability**
  - Measurable and definable outputs, clear scope
  - Operational flexibility
  - Equity/efficiency reasons for private sector service provision
- **Desirability**
  - Do the benefits outweigh the costs?
- **Achievability**
  - Market interest, time scales

# Quantitative Assessment

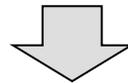
**Identify cost inputs**



**Adjust costs for Optimism Bias**



**Factor in finance cost assumptions**



**Adjust for:**

- **Flexibility**
- **Tax**
- **Life cycle investment**

## Conclusions

- VfM is a concept that compares options
- Affordability and Compliance are constraints
- VfM is important:
  - Decision making
  - Presentation issues
- The assessment of VfM is a balance between qualitative and quantitative factors
- UK uses a phased approach (3 stages)
- UK has a standardized quantitative VfM model which includes various technical adjustments