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# FHWA P3 Project Finance Guidebook

February 2017



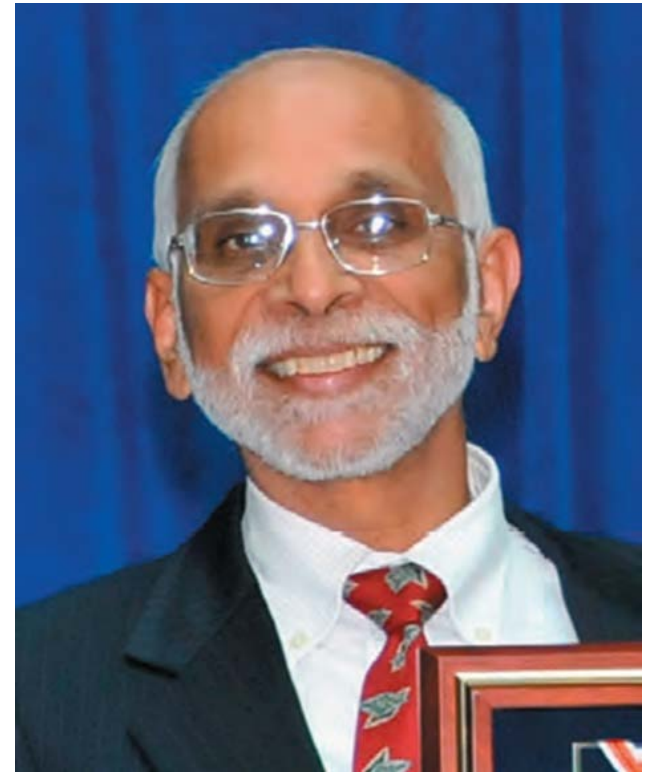
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# Guidebook Contents

1. Introduction
2. Contract Structure
3. Financial Structure
4. Financial Models
5. Illustrative Financial Viability Assessment

*This presentation will introduce Chapters 1-4.*



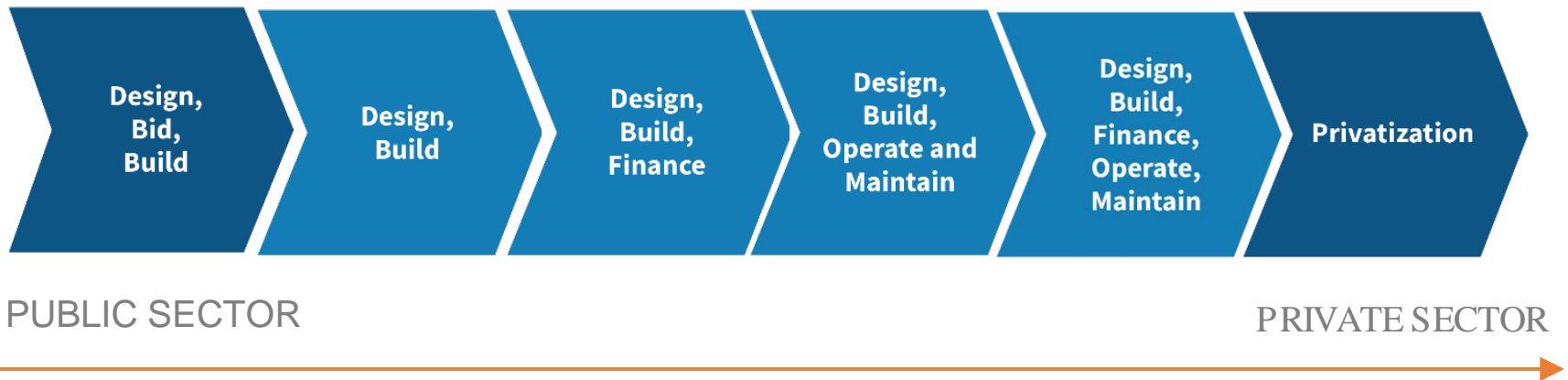


# Chapter 1: Introduction



# Public-private partnerships (P3s)

## Infrastructure Delivery Options



Risk

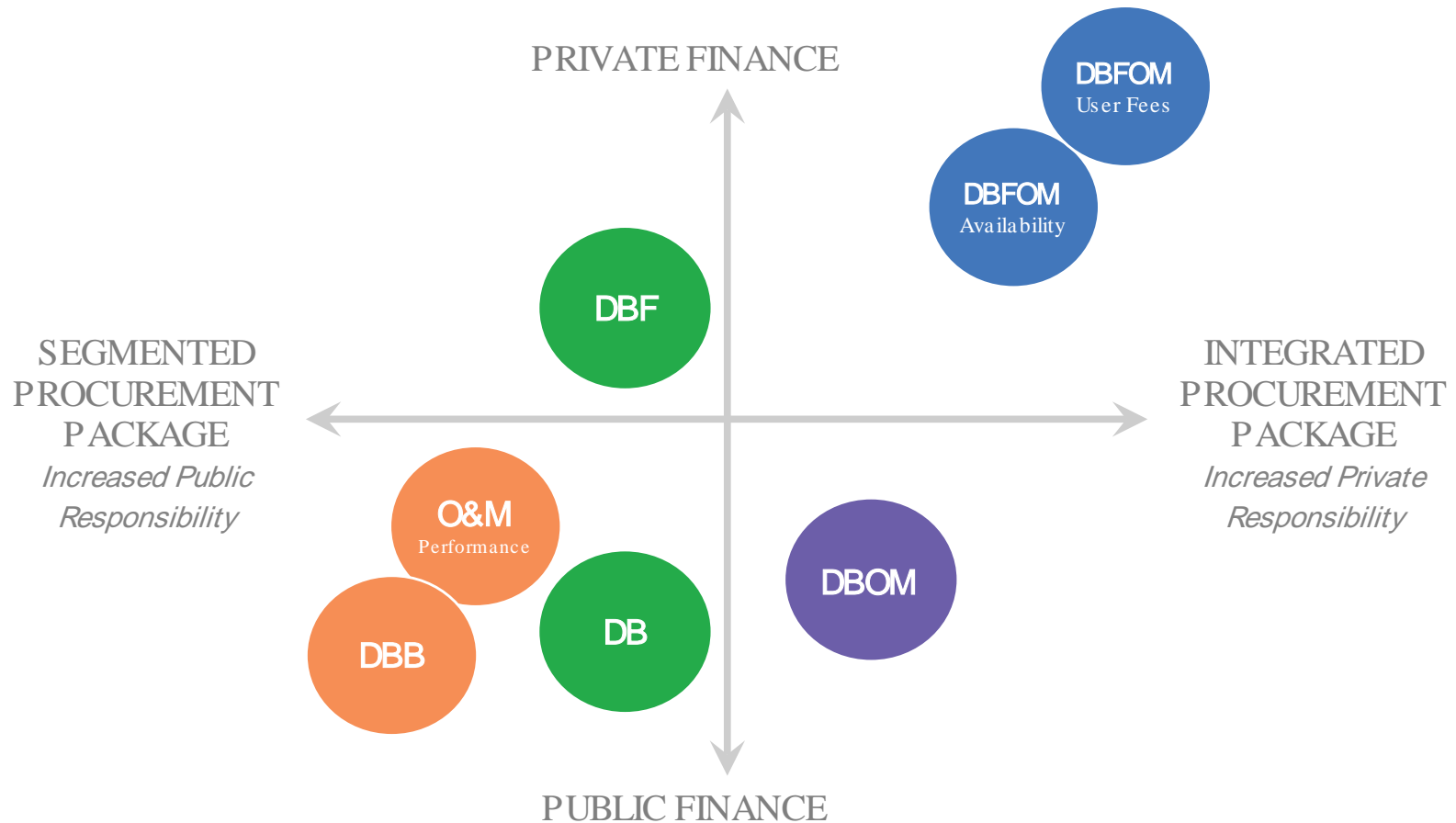
*Degree of ownership, development integration, risk transfer and extent of private financing*

# Design-Bid-Build versus P3

Design-Bid-Build	P3
Public sector takes on most risks (except construction)	Risks shared between public and private sectors
Public financing (mostly)	Private financing (mostly)
Lowest bidder	Best value for least net present cost
Operations and Maintenance (O&M) and ongoing rehabilitation (if any) carried out by public agency (or under fee for prescribed services) once constructed	O&M carried out by private sector; ongoing rehabilitation overseen by public sector stewardship of P3



# P3 Delivery Models





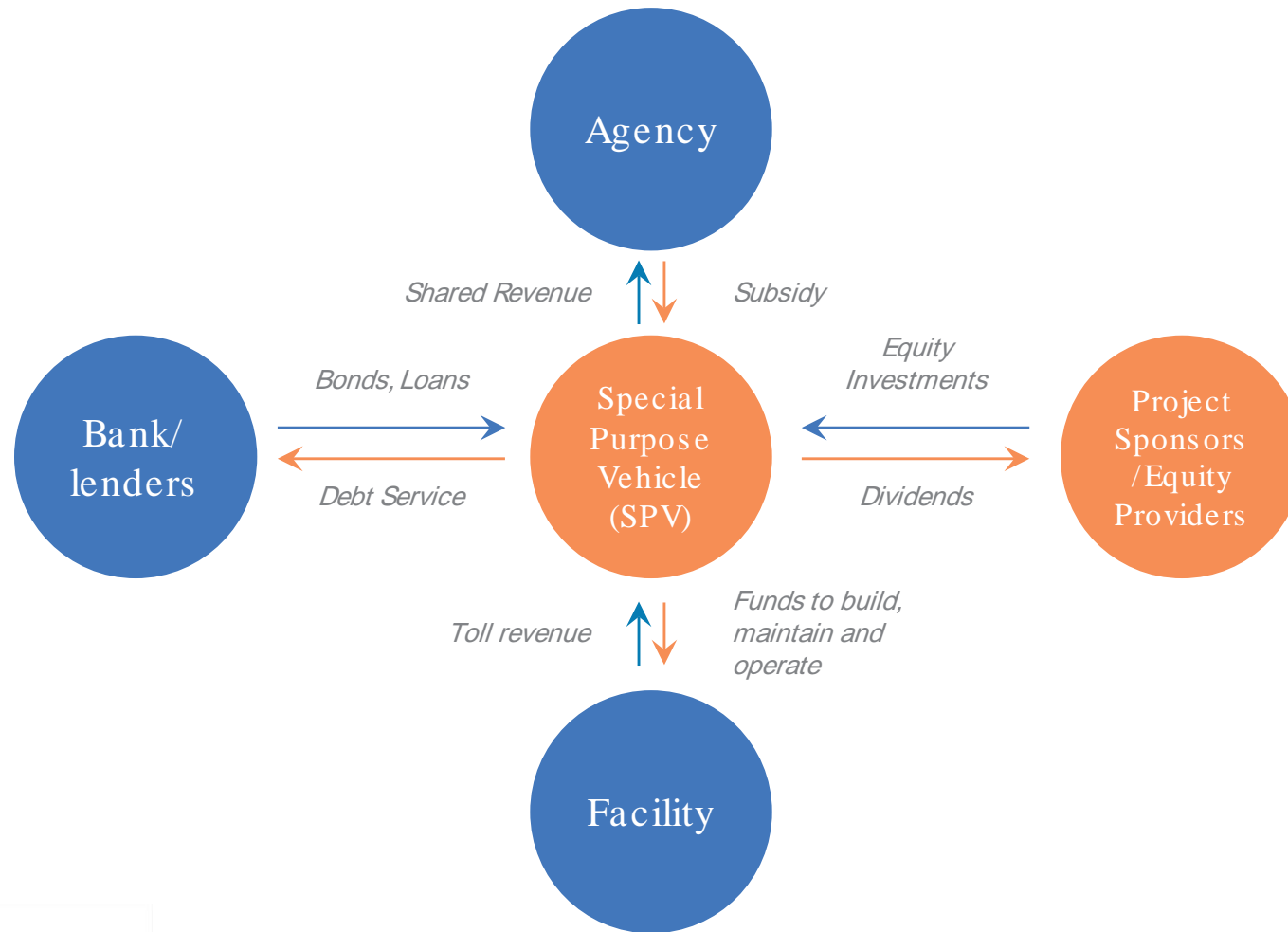


# Payment Mechanisms

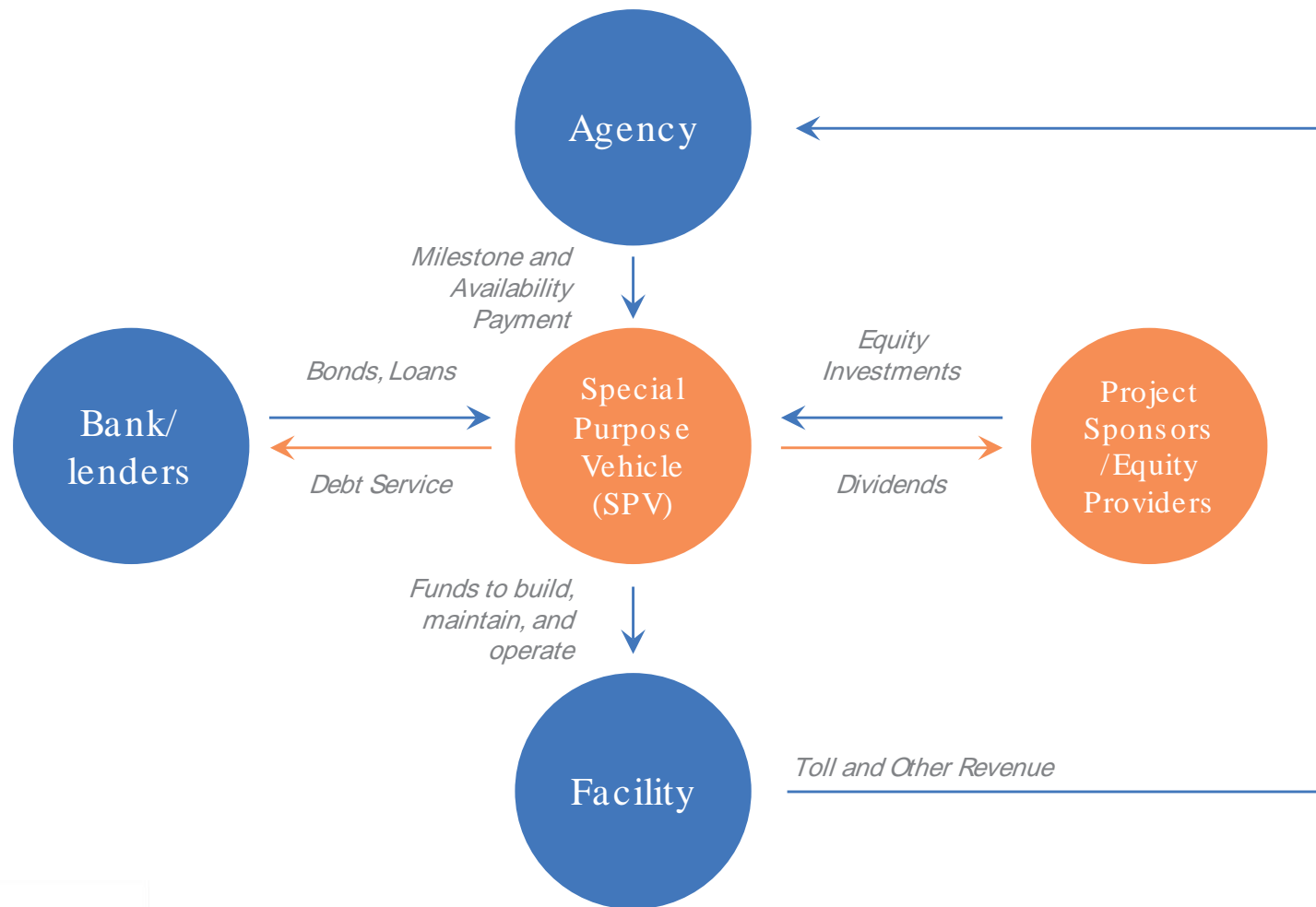
- Toll Concession (Revenue Risk)
- Availability Payment
- Shadow Toll



# Typical Toll Concession P3 Structure



# Typical Availability P3 Structure



# Questions?

Submit a question using the chat box





# Chapter 2: Contract Structure





# Special Purpose Vehicle (SPV)

- Limits exposure in the case of bankruptcy
- Finances only project activities
- Repayment sources are project revenues
- Limits parent company exposure



# P3 Contracts

- Codify risk sharing arrangements through development, procurement, and negotiation processes
- Include a set of back-to-back contracts
  - SPV transfers risk from public sector
- Provide the basis for financing
- Assign the right to collect project revenues

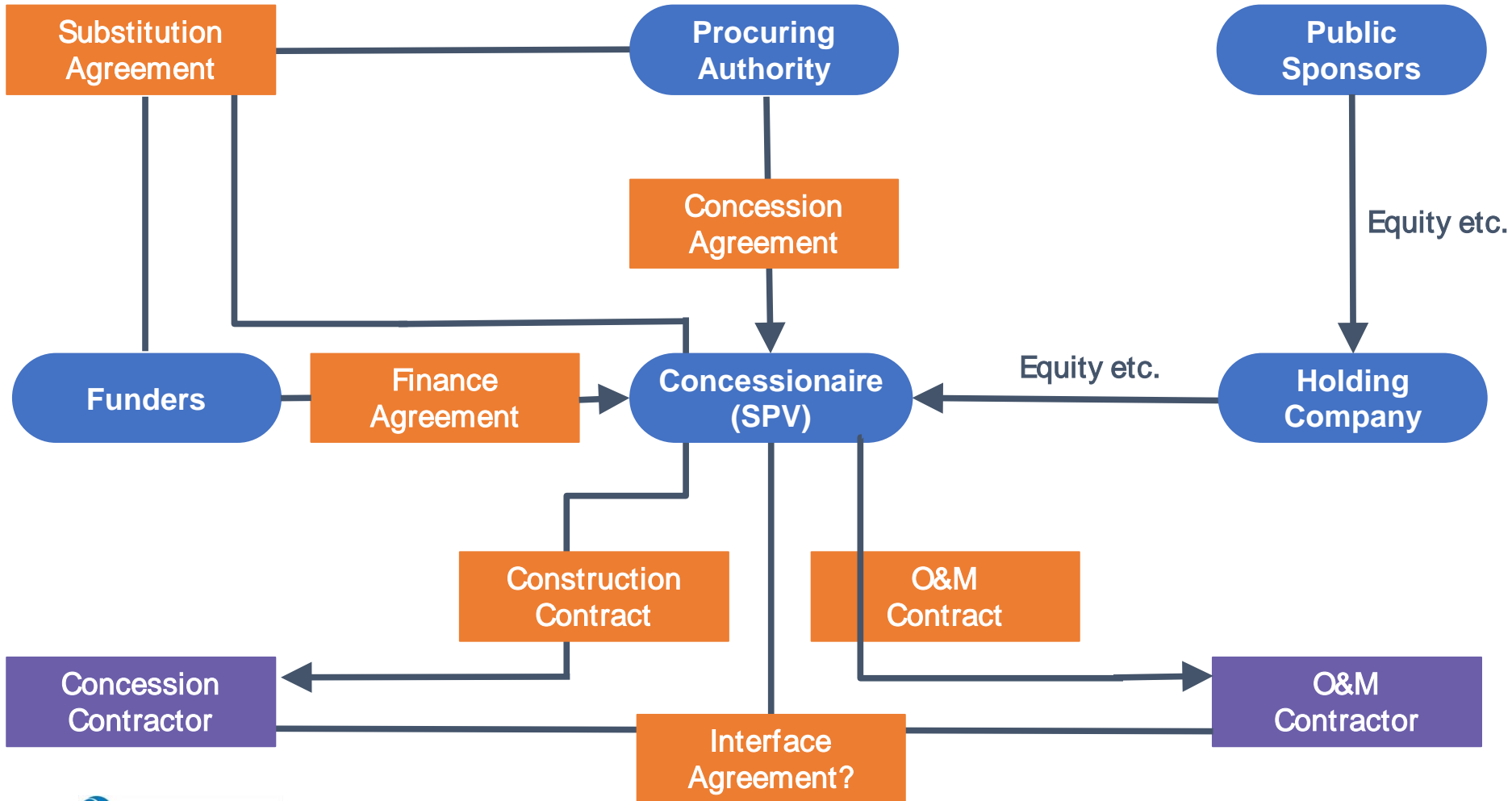


# Typical Risk Allocation

	Public Sector	SPV	Subcontractor
<b>Development Phase</b>			
Planning & environmental process	✓		
Political will	✓		
Regulatory	✓		
Site			
Permitting	✓	✓	✓
Procurement	✓	✓	
Financing		✓	
<b>Construction Phase</b>			
Engineering & construction			✓
Changes in market conditions		✓	
<b>Operation Phase</b>			
Traffic		✓	
Competing facilities	✓		
Operations and maintenance			✓
Appropriation	✓	✓	
Financial default risk to public agency	✓		
Refinancing	✓		
Political	✓		
Regulatory	✓		
Handback		✓	



# SPV Arrangements



# Questions?

Submit a question using the chat box





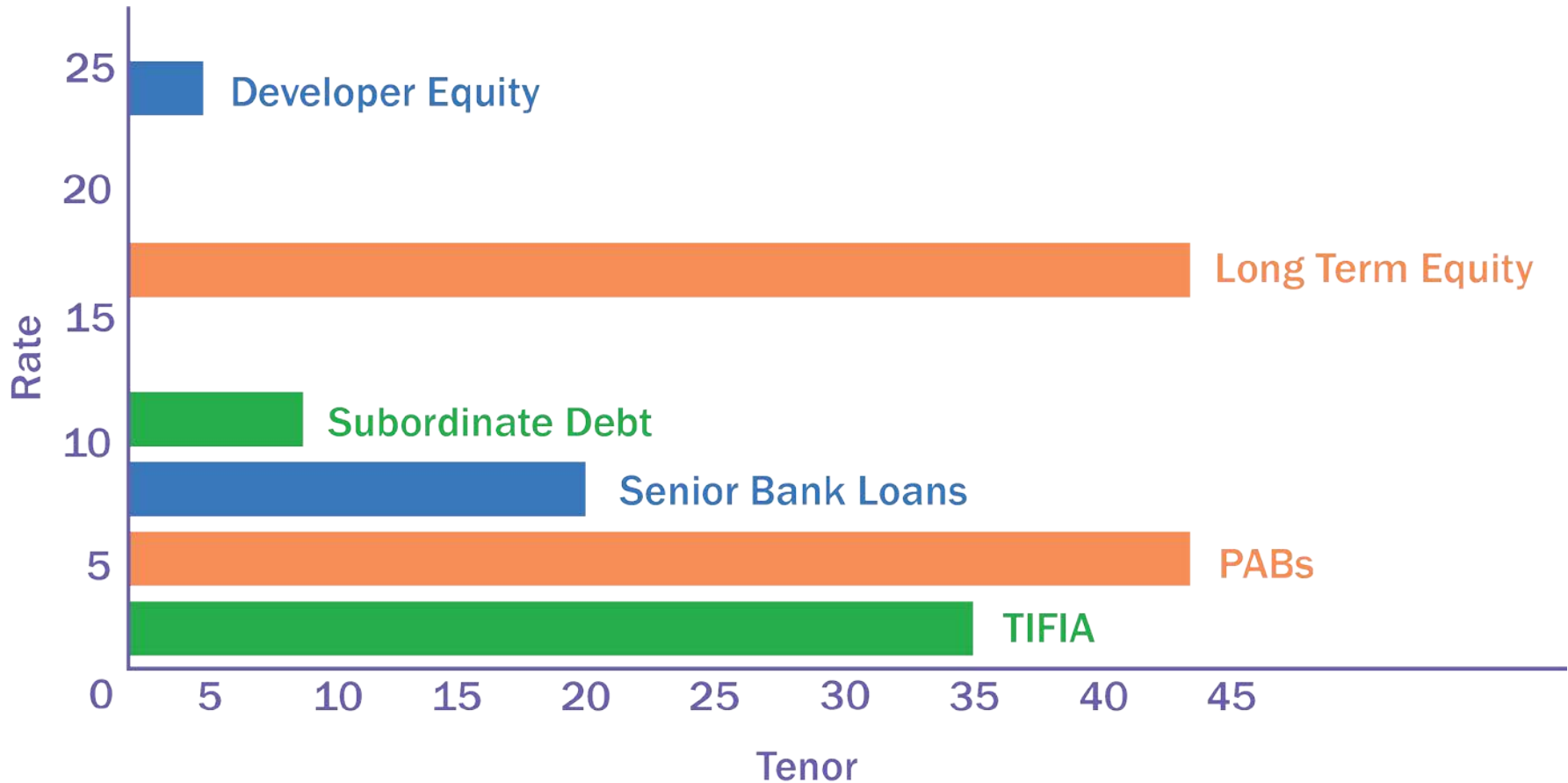
# Chapter 3: Financial Structure



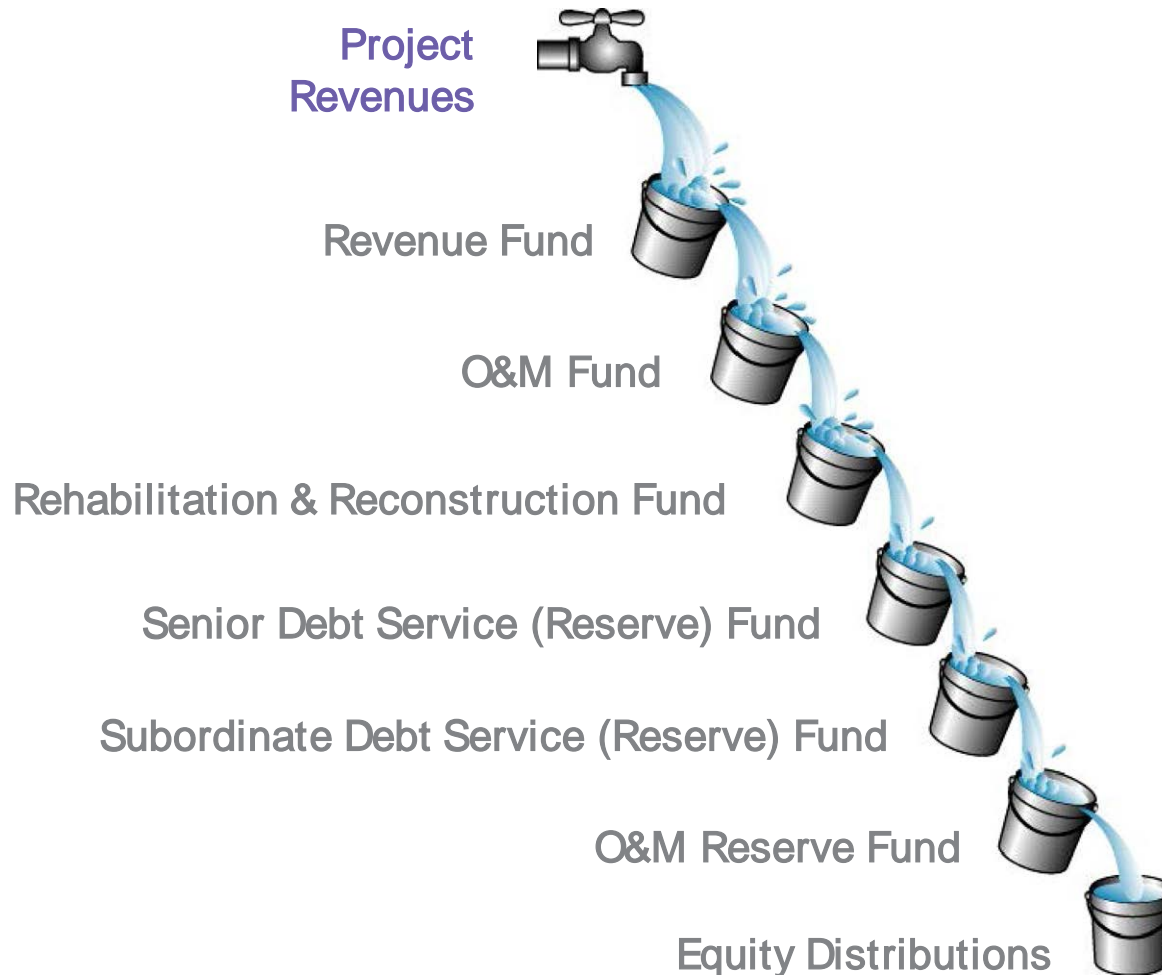
# P3 Project Finance

- Use of project revenues is restricted
- Structure insulates the public authority and private investors from project bankruptcy
- Can be structured off of the public and private balance sheet
  - Availability Payments a special consideration

# Sources of Financing



# Typical Cash Flow Waterfall



# P3 Senior Debt

- Relatively conservative (risk-averse) type of financing
- High in repayment hierarchy (cash flow waterfall)
- Relatively high Debt Service Coverage Ratio (DSCR)

$$\text{DSCR} = \frac{\text{CADS}}{\text{DS}}$$

Where DSCR = Cash Available for Debt Service (CADS) divided by debt service (principal + interest)



# Tax-exempt Debt (“Muni Bonds”)

- Issued by state and local governments to finance infrastructure projects in the US
- Carries a lower financing rate than taxable debt
- Approximately  $\frac{1}{3}$  of all tax-exempt debt is issued as General Obligation (GO) bonds backed by the “full faith and credit” of the issuer
- The other  $\frac{2}{3}$  of tax-exempt debt is issued as “revenue bonds” backed by designated sources of revenue which have some features in common with project finance





# Private Activity Bonds (PAB)

- Most tax-exempt bonds are reserved for public uses and have a 5% eligibility cap for private uses
- A special type of tax-exempt bond, Private Activity Bonds (PAB) can be used for private infrastructure
- The 2005 SAFETEA-LU transportation legislation authorizes \$15 billion in PABs for surface transportation projects
  - As of November 10, 2016, approximately \$11.2 billion of this pool had been allocated and \$6.5 billion issued



# Midtown Tunnel PABs

Series	Maturity	Principal (US\$)	Coupon	Yield*
A	1/1/2022	670,000	4.25%	4.45%
B	1/1/2023	685,000	4.50%	4.60%
C	7/1/2023	1,775,000	5.00%	4.60%
D	1/1/2024	1,760,000	5.00%	4.75%
E	7/1/2024	2,900,000	5.00%	4.75%
F	1/1/2025	3,080,000	4.75%	4.90%
G	7/1/2025	4,875,000	5.00%	4.90%
H	1/1/2026	5,290,000	5.00%	4.95%
I	7/1/2026	6,700,000	5.00%	4.95%
J	1/1/2027	6,150,000	5.00%	5.00%
K	7/1/2027	8,480,000	5.00%	5.00%
L	1/1/2032	91,795,000	5.25%	5.25%
M	1/1/2037	209,185,000	6.00%	5.32%
N	1/1/2042	320,405,000	5.50%	5.50%

\*The rate is the rate offered to bond buyers. When bonds are sold, they often do not sell at face value but at either a premium or a discount. The yield indicates the actual return offered to bondholders based on the actual price paid.

Source: Midtown Tunnel Official Statement available from MSRB EMMA database, CUSIP 928104LK2.



# Pros and Cons of Bank Financing

## Advantages

- Monthly draws
- Easier to negotiate modifications
- More flexible repayment sculpting to match project revenues
- Potential expertise of lenders in similar projects
- Monitoring and project oversight

## Disadvantages

- Maximum tenors of 7-9 years have been more common (up to 20 for availability payment deals) vs. up to 40-year tenors for bond financing
- Not tax-exempt



# Subordinate Debt

- Generally requires lower DSCRs and higher interest rates than senior debt
- Accepts a lower level of priority in the cash flow waterfall
- May be provided by specialized funds or by project shareholders

Transportation Infrastructure Finance and Innovation Act (TIFIA) also provides a form of subordinate debt



# TIFIA Financing

- Types of financial assistance:
  - **Secured (direct) loan**—Maximum term of 35 years
  - **Loan guarantee**—Guarantees repayments to non-Federal lender
  - **Standby line of credit**—Contingent loan available
- Involved in almost all major US highway P3s (other than asset monetizations)
- Generally up to 33 percent of eligible cost financed
- Provides capital, supplemental and subordinate, to projects
- Flexible repayment terms and interest rates



# TIFIA P3 Loans

Project	Amount	Rate (%)	Term (years)
I-95 HOT Lanes	\$300.0	2.76	35.0
Presidio Parkway Tranche A	\$90.0	0.46	3.5
Presidio Parkway Tranche B	\$60.0	2.71	28.0
Midtown Tunnel	\$422.0	3.17	44.0
LBJ-635 Corridor	\$850.0	4.22	40.5
North Tarrant Express	\$650.0	4.51	35.0
Port of Miami Tunnel	\$341.0	4.31	35.0
I-595	\$603.0	3.63	35.0
SH-130 Segment V-VI	\$430.0	4.45	35.0
I-495 HOT Lanes	\$589.0	4.40	40.0

TIFIA has been involved in almost all major US greenfield P3s and approximately a third of the projects in the TIFIA portfolio are P3s



# Questions?

Submit a question using the chat box



# Role of Equity in P3

- Equity investors :
  - Appear at the bottom of the cash flow waterfall in first-loss position
  - Try to insulate from losses by seeking to transfer risks to subcontractors
  - Accept highest level of risk and require a higher return on investments



**No investor guarantee on returns and no investment recourse**





# Types of Equity Investors

Investor	Strategy/Objective	Project Transaction Example
Subcontractors engaging in Design Build and Operations & Maintenance	Broadening participation and potential financial returns over the project term	Midtown Tunnel: Skanska is a 50% equity investor in the SPV and member of the DB contractor team
Financial institutions	Provide development capital and typically exit once the project is up and running or even before	Denver Fastracks Eagle P3: Macquarie sold its stake after the project reached financial close.
Pension funds and insurance companies	Seek long-term return; they prefer a larger share of the concession's cash flows	Florida I-595: TIAA-CREF acquired a 50% stake when the project neared substantial completion



# Equity Investors in US Transportation P3s

Project/Investor	Amount (\$millions)
<b>East End Crossing</b>	
Walsh Investors	\$26.00
VINCI Concessions SAS	\$26.00
Bilfinger Berger	\$26.00
<b>I-95 HOT Lanes</b>	
Fluor	\$24.20
DRIVe USA	\$217.80
<b>Presidio Parkway</b>	
Hochtief	\$23.00
Meridiam	\$23.00
<b>Midtown Tunnel</b>	
Skanska	\$99.45
Macquarie	\$121.55
<b>LBJ-635 Corridor</b>	
Cintra	\$364.00
Meridiam	\$266.00
Dallas Police / Fire Pension Fund	\$70.00

Project/Investor	Amount (\$millions)
<b>North Tarrant Express</b>	
Cintra	\$241.50
Meridiam	\$141.90
Dallas Police / Fire Pension Fund	\$42.60
<b>Port of Miami Tunnel</b>	
Bouygues	\$8.00
Meridiam	\$72.30
<b>I-595</b>	
ACS Iridium	\$207.70
<b>SH-130 Segment 5-6</b>	
Cintra	\$136.40
Zachry	\$73.40
<b>I-495 HOT Lanes</b>	
Flour	\$35.00
Transurban	\$315.00

# Equity Returns for Different Project Phases

- Required equity return decrease as the risks affecting returns reduce over time through key phases
- Differentials exist even though investors pass most risks onto subcontractors

Phase	Risk-free Rate	Project Risk	Phase Risk	Equity Return
Construction	6%	2-4%	4%	12-14%
Ramp up	6%	2-4%	2%	10-12%
Long-term operation	6%	2-4%	-	8-10%

Source: Adapted from Yescombe, E.R. (2007) Public-Private Partnerships: Principles of Policy and Finance. Oxford UK: Elsevier Ltd.





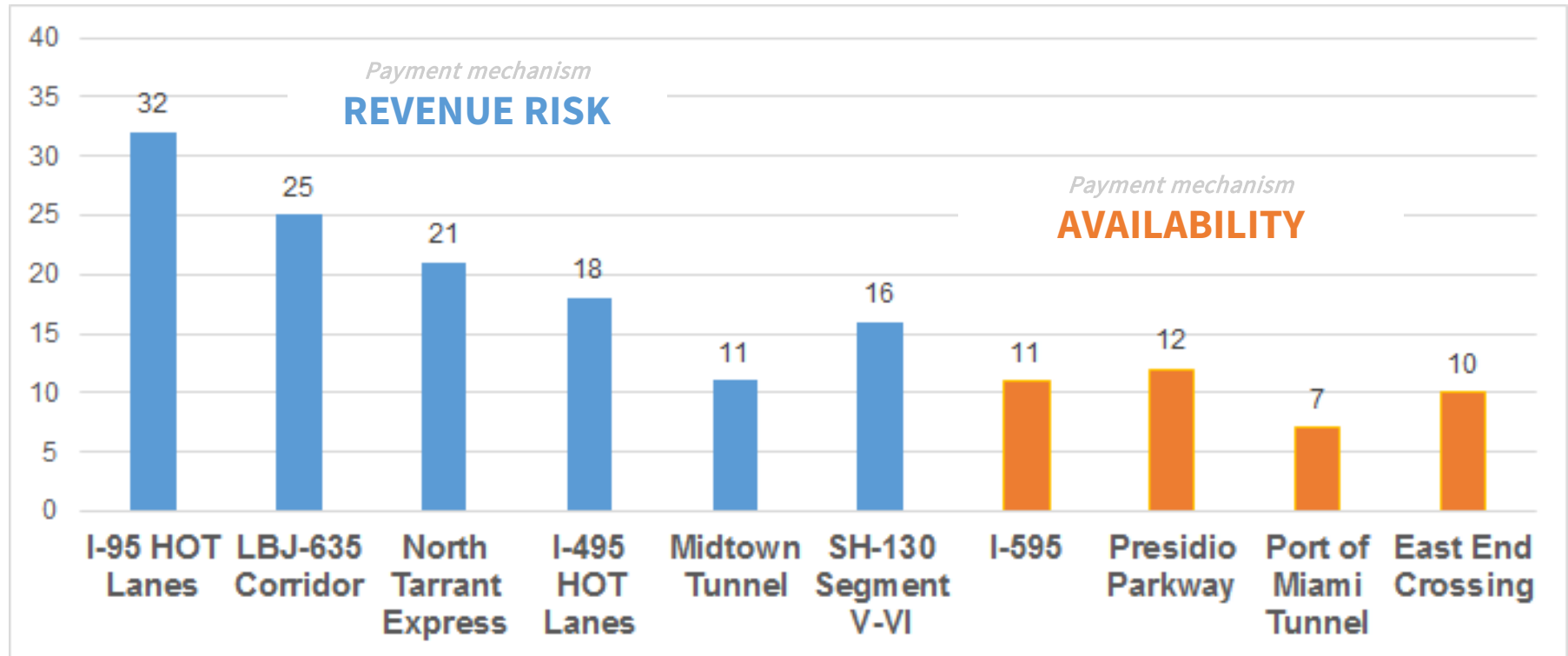
# US Secondary Equity Market

- US secondary market for equity stakes in P3 projects is just beginning to develop
- Transaction examples:
  - I-595
  - Dulles Greenway
  - CA SR-125 South Bay Expressway



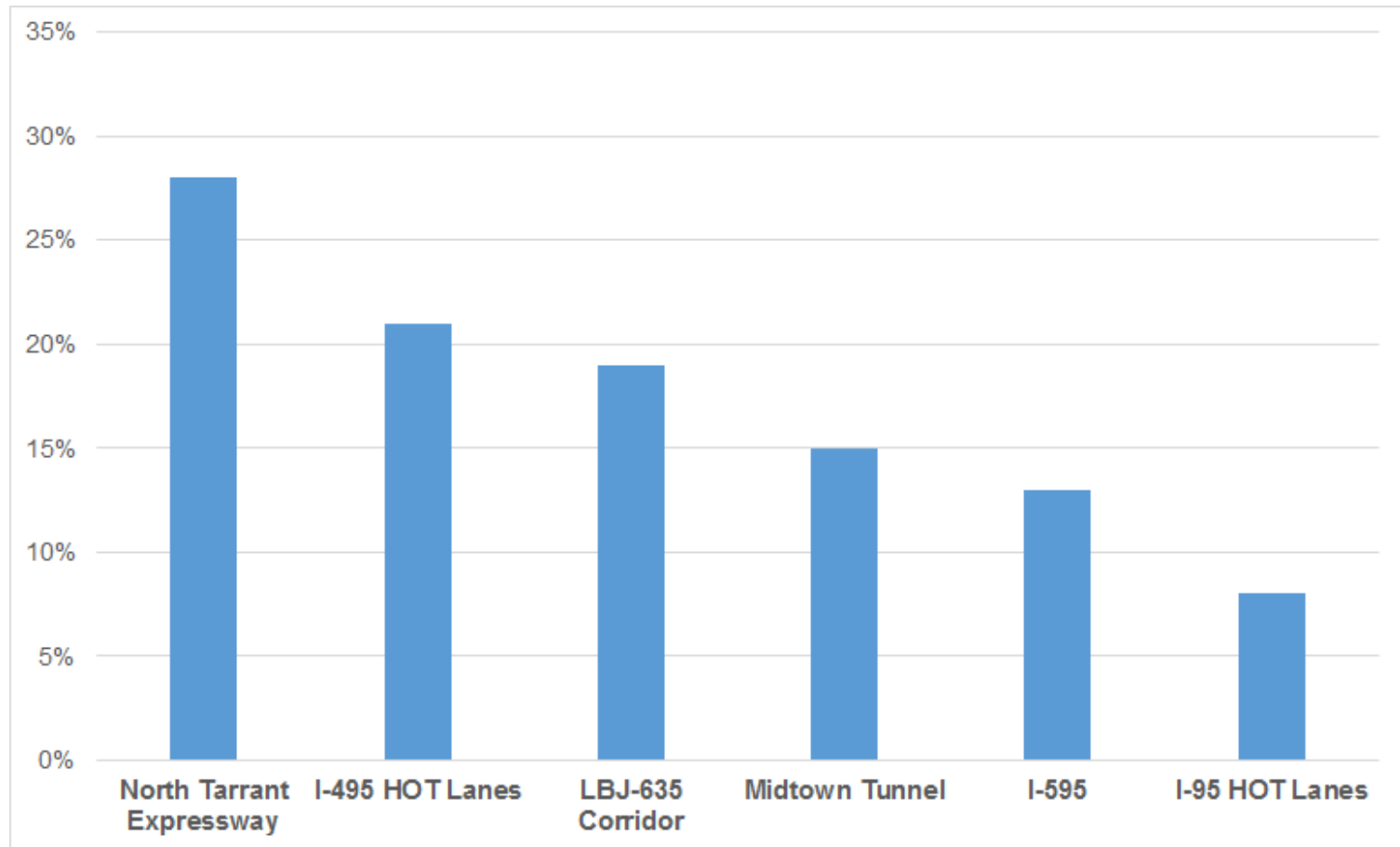
# Equity Share on US Transportation Projects

PERCENT



■ ■ EQUITY AS % OF COST

# Upfront Government Contributions on US P3 Projects





# Operations Phase Contributions

- Govt. contributions to operations have not been a feature of US P3 projects
- Possible to mix availability payment and user fee (toll) revenue streams
- The recently awarded I-77 P3 in North Carolina is expected to feature a mix of operational payments and toll revenues



# Credit Enhancements

- Credit enhancements help to reduce project risk
- Main tradeoff: price vs. liquidity
- Cash reserves are the most liquid
- Insurance costs the least (<1% of project costs)
- Surety coverage is required



# Credit Enhancements

Source of Funds	Terms and Conditions	Value	Availability
<b>Cash reserves</b>	Funded at financial close	Project specific	Immediate (*)
<b>Cash reserves</b>	Funded from project cash flows	Project dependent	Immediate once constituted
<b>Letters &amp; Lines of credit</b>	On call from a financial institution Supports project cash flows during construction to avoid impact on schedule.	About 5-10% of contract value	Immediate (irrevocable and unconditional)
<b>Parental guarantee</b>	Guarantee of performance by ultimate parent of the Construction or the Operations & Maintenance contractor	Based on probable loss	Immediate subject to credit worthiness
<b>Performance bond</b>	Surety bond provides core performance support in case of contractor failure	100% of contract value	Conditional and subject to process
<b>Insurance</b>	Provided by third party to subcontractors and SPV	Priced on coverage, insured	Conditional and subject to process

Notes (\*) Lenders will only consent to use of the reserves for their designated purpose. In other words the debt service reserve is not available for maintenance purposes.



# Questions?

Submit a question using the chat box





# Chapter 4: Financial Modeling





# Use of Financial Modeling

## Project Development

- Determine financial viability
- Assess P3 Value for Money



## Bid Preparation

- RFP designed to ensure project can be successfully tendered
- Bidders test potential financial structures
- Bid evaluation by public agency





# Use of Financial Modeling

## Commercial & Financial Close

- Due diligence by Lenders
- Term negotiations

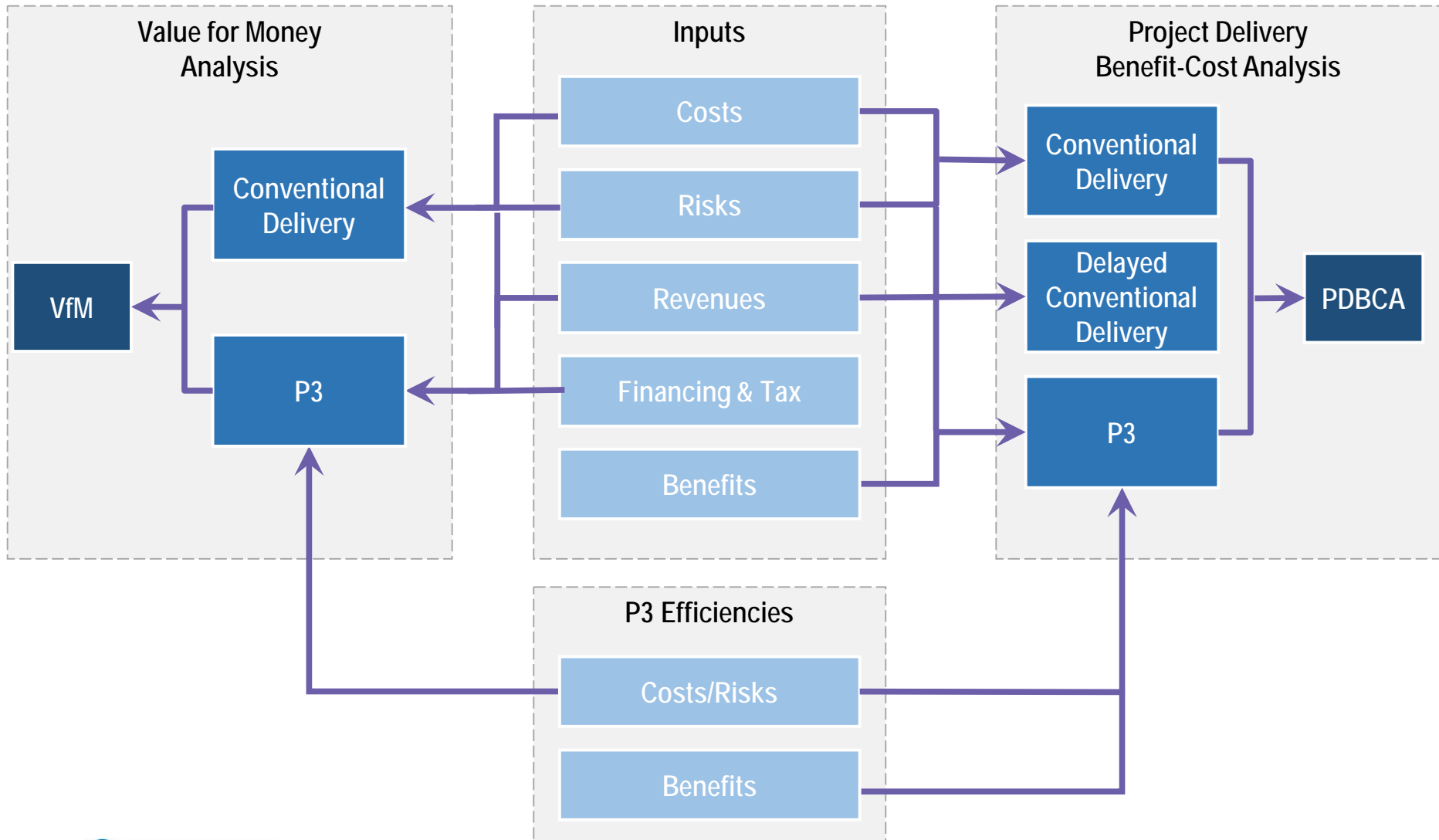


## Concession Period

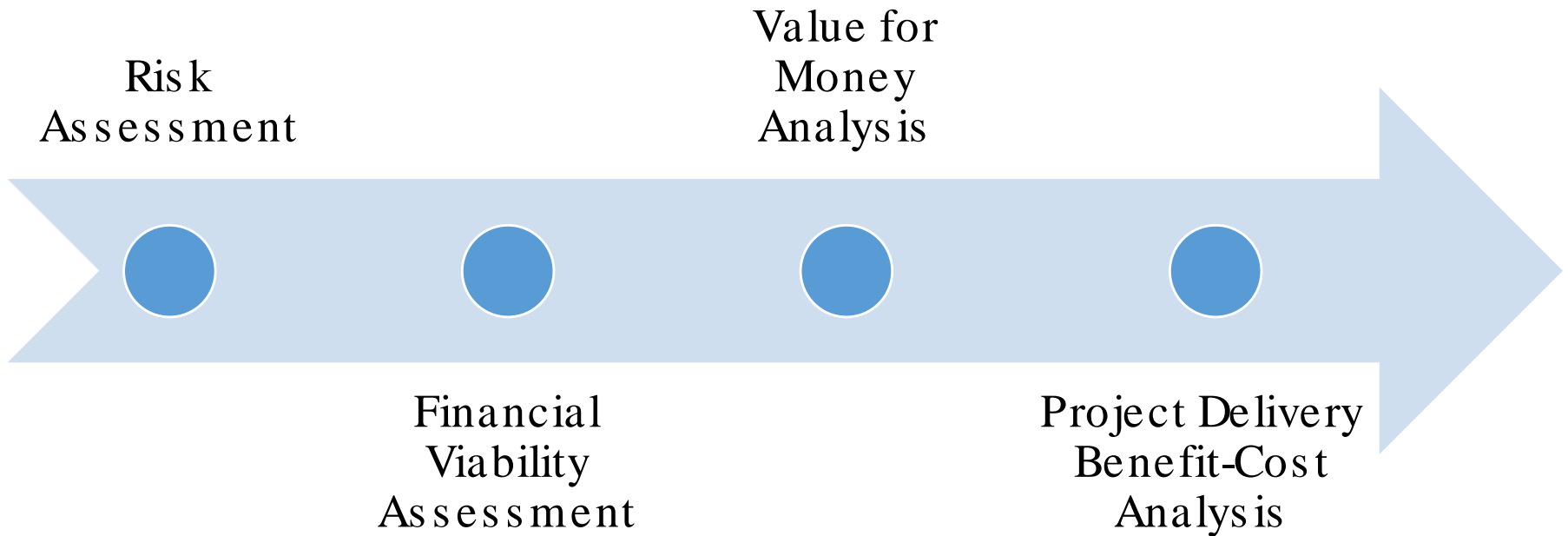
- Monitoring project performance
- Price compensation payments
- Calculate any refinancing gains
- Revenue sharing
- Handback



# FHWA's P3-VALUE 2.0



# Modules





# Tool and References

P3-VALUE 2.0 Excel  
Spreadsheet

User Guide

Primers &  
Guidebooks





# Questions?

Submit a question using the chat box



# FHWA P3 Training

## INTRODUCTORY

### Introduction to P3s

- Overview
- Project Development
- Procurement
- Risk Assessment
- Value for Money
- Project Financing

### Successful P3 Practices and Model Contracts

- Successful Practices Over Project Life Cycle
- Model Toll Concession Contracts
- Model Availability Payment Contracts

## ADVANCED ANALYSIS

### P3 Project Financing

- P3 Structuring
- Finance Viability
- Financial Models

### Risk Assessments

- Risk Identification
- Risk Analysis and Valuation
- Risk Allocation

### Value for Money

- Public Sector Comparator (PSC)
- P3 Option
- Evaluation

### P3 Benefit-Cost Evaluation

- Estimating P3 Efficiency Impacts
- Estimating Public Benefits



# Upcoming P3 Webinars

- **February 9** Use of Performance Measures in P3s
- **February 16** P3 Projects in the U.S.

*To register for the webinars, please visit:*

[http://www.fhwa.dot.gov/ipd/p3/toolkit/p3\\_value\\_webinars](http://www.fhwa.dot.gov/ipd/p3/toolkit/p3_value_webinars)



# FHWA P3 Toolkit: <https://www.fhwa.dot.gov/ipd/p3/toolkit/>

<b>FACT SHEETS</b>	<ul style="list-style-type: none"><li>▪ Ten concise single-sheet discussions of key P3 concepts for a non-technical audience</li></ul>
<b>PRIMERS</b>	<ul style="list-style-type: none"><li>▪ P3 Concessions for Highway Projects</li><li>▪ Risk Assessment</li><li>▪ Value for Money</li><li>▪ Financial Structuring and Assessment</li><li>▪ Establishing a P3 Program</li></ul>
<b>GUIDES</b>	<ul style="list-style-type: none"><li>▪ How FHWA Reviews P3s</li><li>▪ Model Toll Concession Contracts</li><li>▪ Model Availability Payment Contracts</li><li>▪ P3 Project Financing</li><li>▪ Risk Assessment</li><li>▪ Value for Money</li><li>▪ Benefit–Cost Analysis</li></ul>
<b>DISCUSSION PAPERS</b>	<ul style="list-style-type: none"><li>▪ Revenue Risk Sharing</li><li>▪ Performance Requirements for Design and Construction in P3s</li></ul>
<b>ANALYTICAL TOOLS</b>	<ul style="list-style-type: none"><li>▪ P3-SCREEN</li><li>▪ P3-VALUE</li></ul>
<b>INFORMATIONAL REPORTS</b>	<ul style="list-style-type: none"><li>▪ Successful Practices for P3s</li><li>▪ Highway P3 Projects in the U.S</li></ul>



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