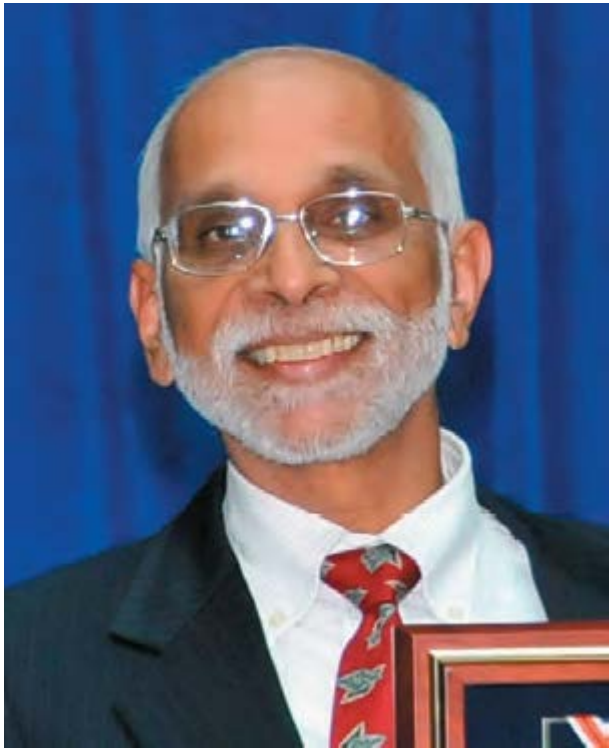
Financial Viability Assessment Exercise Review

P3-VALUE 2.0 Webinar

March 28, 2016

Instructors



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P3-VALUE 2.0 Webinars

- This is one of a series of webinars to introduce P3-VALUE
  - P3 Evaluation Overview (January 25, 2016)
  - Value for Money Analysis (February 8, 2016)
    - Value for Money Exercise Review (February 16, 2016)
  - Project Delivery Benefit-Cost Analysis (Feb 22, 2016)
    - PDBCA Exercise Review (Feb 29, 2016)
  - Risk Assessment (March 7, 2016)
    - Risk Exercise Review (today)
  - Financial Viability Assessment (March 21)
    - **Financial Viability Exercise Review (March 28)**

Exercise Objective

- Learn how to estimate affordability for a public agency under various financing scenarios for (a) Conventional Delivery; and (b) P3 Delivery

Webinar Outline

Intro	Project Background
Part A	Financial Viability of Conventional Delivery
Part B	Financial Viability of P3 Delivery
Recap	Summary of Webinar

Introduction

Project Background

Study Background

A study was done previously by a state DOT to estimate VfM and net social benefits of P3 delivery for a highway project. The various inputs required for the analysis are included in the P3-VALUE 2.0 spreadsheet model.

Project Information

- 20 miles highway expansion
- From 3 lanes to 5 lanes in each direction
  - 3 General Purpose Lanes (GPL)
  - 2 Managed Lanes (ML)
- Costs (excluding risks and financing):
  - Pre-construction & construction: $425M
  - Routine O&M: $4M per year
  - Major maintenance: $10M (every 8 years)
- Preconstruction start: 2015 (2 years)
- Construction start: 2017 (4 years)
- Operations start: 2021 (40 years)

Nominal Risk Values – PSC vs. P3

Item	Nominal values	
	PSC	P3
Pure risks	121	109
Base variability	112	104
Lifecycle performance risk	574	515*
Revenue uncertainty adjustment	377	382*
Total risks transferred under P3 (row 45)	**1,184**	**1,110**

* P3 transferred risks that are accounted for in P3 weighted average cost of capital (WACC)

Traffic Projections for Toll Lanes

Year	Average Daily Traffic Volume (in thousands)
2015	25
2020	30
2030	35
2040	40
2050	45
> 2050	1.00%

Toll Rates (First Year)

Traffic Type	Toll Rate ($/vehicle)
Passenger cars - Weekday Peak	4.00
Passenger cars - Weekday Off-peak	2.00
Passenger cars - Weekend	2.00
Trucks - Weekday Peak	6.00
Trucks - Weekday Off-peak	4.00
Trucks - Weekend	4.00

PSC Financing Conditions

Financing Condition	Value
Debt maturity:	35 years
Debt interest rate:	4 %
Minimum required DSCR:	1.3
Public subsidy allocated to project:	$100 M.

P3 Financing Conditions

Financing Condition	Value
Cost of equity	12%.
Gearing (debt-to-equity ratio)	75%
Debt maturity	30 years
Debt interest rate	6%
Equity bridge loan interest rate	6%
Minimum required DSCR	1.3
Subsidy allocated to project:	$100 M.

Part A

Conventional Delivery Financial Viability

Financial Levers

- **Project scope**
- **Revenue:**
  - Toll rates
- **Debt terms:**
  - Annuity debt repayment vs. sculpted debt
  - DSCR
  - Debt maturity
  - Grace period (for annuity payment)
  - Interest rate

Inputs

- **Revenue**: Toll rates and traffic forecasts
- **Debt**: Annuity vs. sculpted, maturity, grace period, interest rates, fees, minimum required DSCR
- **Reserves**: Number of months of debt service required, interest received on cash balances and reserves
- **Subsidy**: Allocated public subsidy amount

Alternate Scenarios

Base Case: Given scope, revenues and financing conditions.

1. Base case with lower DSCR requirement:
   - Reduce the minimum DSCR requirement to 1.2.
2. Test 1 with longer debt maturity:
   - Increase the debt maturity to 40 years.
3. Test 2 with lower interest rates:
   - Reduce the interest rate to 3%.

Review of Model Inputs

Please stand by as we open the Excel file

Review of Model Outputs

Base Case

Test 1: Base case plus DSCR of 1.2

Test 2: Test 1 case plus 40-year debt maturity

Test 3: Test 2 case plus 3% interest rate

Base Case Results

Conventional Delivery - Debt service coverage ratio	Ratio	Unit
Average calculated DSCR	1.30	ratio
Minimum calculated DSCR	1.30	ratio
Minimum calculated vs. minimum required DSCR alert	-	alert

Conventional Delivery - Sources of funding and financing	Amount	Unit
Debt amount	334,775	USD k
Subsidy/milestone payment	110,408	USD k
Additional required subsidy	171,611	USD k
Total sources of funding and financing	***616,794***	***USD k***

Test 1: Reduce DSCR

Conventional Delivery - Debt service coverage ratio	Ratio	Unit
Average calculated DSCR	1.20	ratio
Minimum calculated DSCR	1.20	ratio
Minimum calculated vs. minimum required DSCR alert	-	alert

Conventional Delivery - Sources of funding and financing	Amount	Unit
Debt amount	362,789	USD k
Subsidy/milestone payment	110,408	USD k
Additional required subsidy	146,798	USD k
Total sources of funding and financing	***619,996***	***USD k***

Test 2: Increase Debt Maturity

Conventional Delivery - Debt service coverage ratio	Ratio	Unit
Average calculated DSCR	1.20	ratio
Minimum calculated DSCR	1.20	ratio
Minimum calculated vs. minimum required DSCR alert	-	alert

Conventional Delivery - Sources of funding and financing	Amount	Unit
Debt amount	418,638	USD k
Subsidy/milestone payment	110,408	USD k
Additional required subsidy	95,663	USD k
Total sources of funding and financing	***624,708***	***USD k***

Test 3: Lower Interest Rate

Conventional Delivery - Debt service coverage ratio	Ratio	Unit
Average calculated DSCR	1.20	ratio
Minimum calculated DSCR	1.20	ratio
Minimum calculated vs. minimum required DSCR alert	-	alert

Conventional Delivery - Sources of funding and financing	Amount	Unit
Debt amount	503,152	USD k
Subsidy/milestone payment	110,408	USD k
Additional required subsidy	7,122	USD k
Total sources of funding and financing	***620,682***	***USD k***

Summary of Conventional Delivery Results

Scenario	Debt size ($M) N12	Average calculated DSCR N7	Minimum calculated DSCR N8	Subsidy ($M) N13+N14
Base Case: Sculpted with 30-year maturity, minimum DSCR 1.30, 4% interest rate, default tolls	334.4	1.30	1.30	282.0
Test 1: Reduce minimum DSCR to 1.20	362.8	1.20	1.20	257.2
Test 2: Increase debt maturity to 40 years	418.6	1.20	1.20	206.1
Test 3: Lower interest rate to 3%	503.2	1.20	1.20	117.5

Questions?

Submit a question using the chat box

Part B

P3 Financial Viability

Financial Levers

- **Project scope**
- **Revenue**:
  - Toll rates
- **Financing terms**:
  - Annuity debt repayment vs. sculpted debt
  - DSCR
  - Debt maturity
  - Grace period (for annuity repayment)
  - Interest rate
  - Equity return required
  - Leverage (debt-to-equity ratio)

P3 Inputs

- **Revenue**: Toll rates and traffic forecasts
- **Equity**: Cost of equity, gearing
- **Debt**: Annuity vs. sculpted, maturity, grace period, interest rates, fees, minimum required DSCR
- **Reserves**: Number of months of debt service required, interest received on cash balances and reserves
- **Subsidy**: Subsidy amount

Alternative Scenarios

Base Case: Given scope, revenues and financing conditions

1. Reduced DSCR, increased debt maturity and lower interest rate:
   - Reduce the DSCR from 1.3 to 1.25
   - Increase the debt maturity from 30 years to 35 years
   - Lower the interest rate from 6% to 5%.
2. Add increased leverage:
   - Increase debt-to-equity ratio from 75% to 80%.
3. Add increased revenues:
   - Increase the peak weekday toll rate for passenger cars by $0.25 (from $4.00 to $4.25)

Review of Model Inputs

Please stand by as we open the Excel file

Review of Model Outputs

Base Case

Test 1: Reduced DSCR, increased debt maturity and lower interest rate:

Test 2: Test 1 Case plus increased leverage

Test 3: Test 2 Case plus increased revenues

P3 Base Case

P3 - Debt service coverage ratio	Ratio	Unit
Average calculated DSCR	1.63	ratio
Minimum calculated DSCR	1.63	ratio
Minimum calculated DSCR vs. minimum required DSCR alert	-	alert
P3 - Sources of funding and financing	**Amount**	**Unit**
Debt amount	238,618	USD k
Subsidy/milestone payment to Developer	108,243	USD k
Additional required subsidy to Developer	96,812	USD k
Equity contribution	79,539	USD k
Total sources of funding and financing	***523,212***	***USD k***
P3 - Financial outputs	**Value**	**Unit**
Equity IRR (post tax)	12.00%	% p.a.
P3 WACC	8.84%	% p.a.

P3 Test 1: Favorable Financing

P3 - Debt service coverage ratio	Ratio	Unit
Average calculated DSCR	1.89	ratio
Minimum calculated DSCR	1.89	ratio
Minimum calculated DSCR vs. minimum required DSCR alert	-	alert
P3 - Sources of funding and financing	**Amount**	**Unit**
Debt amount	268,187	USD k
Subsidy/milestone payment to Developer	108,243	USD k
Additional required subsidy to Developer	51,926	USD k
Equity contribution	89,396	USD k
Total sources of funding and financing	***517,752***	***USD k***
P3 - Financial outputs	**Value**	**Unit**
Equity IRR (post tax)	12.00%	% p.a.
P3 WACC	8.02%	% p.a.

P3 Test 2: Add Favorable Gearing

P3 - Debt service coverage ratio	Ratio	Unit
Average calculated DSCR	1.66	ratio
Minimum calculated DSCR	1.66	ratio
Minimum calculated DSCR vs. minimum required DSCR alert	-	alert
P3 - Sources of funding and financing	**Amount**	**Unit**
Debt amount	305,624	USD k
Subsidy/milestone payment to Developer	108,243	USD k
Additional required subsidy to Developer	29,894	USD k
Equity contribution	76,406	USD k
Total sources of funding and financing	***520,167***	***USD k***
P3 - Financial outputs	**Value**	**Unit**
Equity IRR (post tax)	12.00%	% p.a.
P3 WACC	7.66%	% p.a.

P3 Test 3: Add Toll Increase

P3 - Debt service coverage ratio	Ratio	Unit
Average calculated DSCR	1.66	ratio
Minimum calculated DSCR	1.66	ratio
Minimum calculated DSCR vs. minimum required DSCR alert	-	alert
P3 - Sources of funding and financing	**Amount**	**Unit**
Debt amount	314,722	USD k
Subsidy/milestone payment to Developer	108,243	USD k
Additional required subsidy to Developer	18,565	USD k
Equity contribution	78,680	USD k
Total sources of funding and financing	***520,210***	***USD k***
P3 - Financial outputs	**Value**	**Unit**
Equity IRR (post tax)	12.00%	% p.a.
P3 WACC	7.66%	% p.a.

Summary of P3 Scenarios

Scenario	Equity ($M) N30	Equity IRR N34	Minimum DSCR N23	Concession fee/subsidy ($M) N28+N29
Base Case: Sculpted with 30-yr maturity, minimum DSCR 1.30, gearing 75%-25%, 6% interest rate, default toll rates	79.5	12.00	1.63	205.1
Test 1: Reduce DSCR to 1.25x, increase maturity to 35 years, lower interest rate to 5%	89.4	12.00	1.89	160.2
Test 2: Increase gearing to 80%-20%	76.4	12.00	1.66	138.1
Test 3: Increase peak tolls for passenger cars by $0.25	78.7	12.00	1.66	126.8

Questions?

Submit a question using the chat box

Webinar Summary

Webinar Recap

Intro	Project Background
Part A	Financial Viability of Conventional Delivery
Part B	Financial Viability of P3 Delivery

Tool and References

P3-VALUE 2.0 Excel Spreadsheet

User Guide

Primers & Guidebooks

Resources

FHWA's Office of Innovative Program Delivery Website:
http://www.fhwa.dot.gov/ipd/

P3 Website:
http://www.fhwa.dot.gov/ipd/p3/

Questions?

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Contact Information

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