



Financial Viability and Value for Money Analysis: *Homework Assignments Review*

P3-VALUE Webinar – April 25, 2014

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Background

- This webinar is a follow-up webinar to review the homework assigned at the P3 Financial Assessment webinar presented on March 13
- Recordings for P3-VALUE webinars are available at: http://www.fhwa.dot.gov/ipd/p3/toolkit/p3_value_webinars/index.htm/



Webinar Outline

Part 1

Review of assigned Homework #3 on Financial Viability Assessment for Project with Tolls

Part 2

Scenario analysis using P3-VALUE Financial Assessment Tool



Webinar Objectives

After participating in this “office hours” webinar you should be able to:

- Explain the *financial viability* analysis results from runs of the P3-VALUE Financial Assessment Tool
- Use the P3-VALUE Financial Assessment Tool to test the impact of changes to key project variables



Part 1

Assumptions



Hypothetical Project Cost Data

- Design-Bid-Build (or Design-Build), with 30-year project life
- Base design/construction costs of \$30M in Year 1 and \$70M in year 2 – in nominal dollars
- \$10 million (real dollars) per year O&M costs over 28 years, inflated at 3%
- Total risk cost estimates for design-build phase:
 - 10% probability (P10) that they will be at or below \$10 M
 - 70% probability (P70) that they will be at or below \$20 M
 - 90% probability (P90) that they will be at or below \$30 M
- Annual risk cost estimates for operations phase:
 - 10% probability (P10) that they will be at or below \$1 M
 - 70% probability (P70) that they will be at or below \$2 M
 - 90% probability (P90) that they will be at or below \$3 M
- Other project costs are assumed to be zero for simplicity



Hypothetical Project Revenue Data

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- Inputs for revenue estimation:
 - Average Annual Daily Traffic (AADT) in Year 3 = 21,600 vehicles, no growth over project life (for simplicity)
 - Average toll rate = \$2.00 in Year 0 dollars (increases with inflation)
- Adjustment for revenue leakage (i.e. uncollected tolls) = 5% reduction
- Ramp-up period (Year 3 and Year 4):
 - Year 3 = 67% reduction
 - Year 4 = 33% reduction



Homework Assignment 3

- Run a Financial Viability analysis using the P3-VALUE Financial assessment tool to estimate the public subsidy required for:
 - Scenario 1 = Toll Rate is \$2.00 (base case)
 - Scenario 2 = Toll Rate is \$2.50
 - Scenario 3 = Toll Rate is \$3.00
 - Scenario 4 = Concession Length of 35 years
 - Scenario 5 = Concession Length of 50 years
 - Scenario 6 = Concession Length of 75 years
- Use a 5% discount rate



Demonstration



Part 2

Scenario Analysis

Toll Rate Scenario Analysis

- Scenario 2 = Toll Rate is \$2.50
- Scenario 3 = Toll Rate is \$3.00

	\$2.00 Toll	\$2.50 Toll	\$3.00 Toll
P70 NPV of Revenues	\$290,082,714	\$362,603,393	\$435,124,071
P70 Net Project Cost (excluding financing)	\$60,493,021	(\$12,027,658)	(\$84,548,336)



Scenario 2 - Outputs

Cash Flow Viability - NPC Summary (\$)				
Nominal Discount Rate	Initial Project Estimate	P10	P70	P90
5.00%	NPC	NPC	NPC	NPC
Costs				
Construction Costs	88,762,142	88,762,142	88,762,142	88,762,142
O&M	203,384,304	203,384,304	203,384,304	203,384,304
Other Project Costs	-	-	-	-
NPC of Life Cycle Costs	292,146,446	292,146,446	292,146,446	292,146,446
Revenues and Funding				
Toll + Other Revenue	(362,603,393)	(362,603,393)	(362,603,393)	(362,603,393)
Project Subsidy	-	-	-	-
NPC of Revenues and Funding	(362,603,393)	(362,603,393)	(362,603,393)	(362,603,393)
NPC of Risk Impacts	N/A	29,214,645	58,429,289	87,643,934
Net Project Cost (excluding financing)	(70,456,947)	(41,242,302)	(12,027,658)	17,186,987
Cost of Financing (Interest & Fee)	-	-	-	-
Net Project Cost (including financing)	(70,456,947)	(41,242,302)	(12,027,658)	17,186,987



Scenario 3 - Outputs

Cash Flow Viability - NPC Summary (\$)				
<i>Nominal Discount Rate</i>	Initial Project Estimate	P10	P70	P90
5.00%	NPC	NPC	NPC	NPC
Costs				
Construction Costs	88,762,142	88,762,142	88,762,142	88,762,142
O&M	203,384,304	203,384,304	203,384,304	203,384,304
Other Project Costs	-	-	-	-
NPC of Life Cycle Costs	292,146,446	292,146,446	292,146,446	292,146,446
Revenues and Funding				
Toll + Other Revenue	(435,124,071)	(435,124,071)	(435,124,071)	(435,124,071)
Project Subsidy	-	-	-	-
NPC of Revenues and Funding	(435,124,071)	(435,124,071)	(435,124,071)	(435,124,071)
NPC of Risk Impacts	N/A	29,214,645	58,429,289	87,643,934
Net Project Cost (excluding financing)	(142,977,625)	(113,762,981)	(84,548,336)	(55,333,692)
Cost of Financing (Interest & Fee)	-	-	-	-
Net Project Cost (including financing)	(142,977,625)	(113,762,981)	(84,548,336)	(55,333,692)



Concession Length Scenario Analysis

- Scenario 4 = Concession Length of 35 years
- Scenario 5 = Concession Length of 50 years
- Scenario 6 = Concession Length of 75 years

	35 Years	50 Years	75 Years
P70 NPV of Revenues	\$329,234,659	\$426,440,270	\$537,400,831
P70 Net Project Cost (excluding financing)	\$ 52,705,287	\$33,370,069	\$11,298,846



Scenario 4 - Outputs

VfM Viability - NPC Summary (\$)

<i>Nominal Discount Rate</i>	Initial Project Estimate	P10	P70	P90
5.00%	NPC	NPC	NPC	NPC
Costs				
Construction Costs	88,762,142	88,762,142	88,762,142	88,762,142
O&M	229,521,146	229,521,146	229,521,146	229,521,146
Other Project Costs	-	-	-	-
NPC of Life Cycle Costs	318,283,289	318,283,289	318,283,289	318,283,289
Revenues and Funding				
Toll + Other Revenue	(329,234,659)	(329,234,659)	(329,234,659)	(329,234,659)
Project Subsidy	-	-	-	-
NPC of Revenues and Funding	(329,234,659)	(329,234,659)	(329,234,659)	(329,234,659)
NPC of Risk Impacts	N/A	31,828,329	63,656,658	95,484,987
Net Project Cost (excluding financing)	(10,951,370)	20,876,958	52,705,287	84,533,616
Cost of Financing (Interest & Fee)	-	-	-	-
Net Project Cost (including financing)	(10,951,370)	20,876,958	52,705,287	84,533,616



Scenario 5 - Outputs

Cash Flow Viability - NPC Summary (\$)

<i>Nominal Discount Rate</i>	Initial Project Estimate	P10	P70	P90
5.00%	NPC	NPC	NPC	NPC
Costs				
Construction Costs	88,762,142	88,762,142	88,762,142	88,762,142
O&M	294,413,140	294,413,140	294,413,140	294,413,140
Other Project Costs	-	-	-	-
NPC of Life Cycle Costs	383,175,283	383,175,283	383,175,283	383,175,283
Revenues and Funding				
Toll + Other Revenue	(426,440,270)	(426,440,270)	(426,440,270)	(426,440,270)
Project Subsidy	-	-	-	-
NPC of Revenues and Funding	(426,440,270)	(426,440,270)	(426,440,270)	(426,440,270)
NPC of Risk Impacts	N/A	38,317,528	76,635,057	114,952,585
Net Project Cost (excluding financing)	(43,264,988)	(4,947,459)	33,370,069	71,687,597
Cost of Financing (Interest & Fee)	-	-	-	-
Net Project Cost (including financing)	(43,264,988)	(4,947,459)	33,370,069	71,687,597



Scenario 6 - Outputs

Cash Flow Viability - NPC Summary (\$)				
Nominal Discount Rate	Initial Project Estimate	P10	P70	P90
5.00%	NPC	NPC	NPC	NPC
Costs				
Construction Costs	88,762,142	88,762,142	88,762,142	88,762,142
O&M	368,487,588	368,487,588	368,487,588	368,487,588
Other Project Costs	-	-	-	-
NPC of Life Cycle Costs	457,249,731	457,249,731	457,249,731	457,249,731
Revenues and Funding				
Toll + Other Revenue	(537,400,831)	(537,400,831)	(537,400,831)	(537,400,831)
Project Subsidy	-	-	-	-
NPC of Revenues and Funding	(537,400,831)	(537,400,831)	(537,400,831)	(537,400,831)
NPC of Risk Impacts	N/A	45,724,973	91,449,946	137,174,919
Net Project Cost (excluding financing)	(80,151,100)	(34,426,127)	11,298,846	57,023,819
Cost of Financing (Interest & Fee)	-	-	-	-
Net Project Cost (including financing)	(80,151,100)	(34,426,127)	11,298,846	57,023,819

Questions?

Submit a question using the chat box



Or



Dial *1 to call in your question by phone

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