Homework Assignment:
Value for Money Analysis
Part 1: Developing the Public Sector Comparator

Thank you for participating in the P3-VALUE Value for Money Analysis webinar. To practice lessons learned from the webinar and to prepare for the upcoming P3-VALUE webinar on Financial Assessment, please follow the instructions below to complete a value for money analysis for the hypothetical project presented at the webinar, first using an availability payment concession and then using a toll concession.

To conduct a VfM analysis, one must construct a public sector comparator, or PSC, and a shadow bid, or SB. Please use the PSC Tool and SB Tools in completing the first part of the assignment. Instructions for the set of basic assumptions to assist you in constructing the PSC and SB for the hypothetical project were provided earlier. You may find it useful to reference the PSC Tool and SB Tool User Manuals, accessible at http://www.fhwa.dot.gov/ipd/pdfs/p3/p3_value_psc_manual_v1.pdf and at: http://www.fhwa.dot.gov/IPD/p3/toolkit/analytical_tools/public_sector_comparator_tool/toc.htm Additionally, if you have any questions about the assignment, please send them to P3-VALUE@dot.gov.

PSC Tool Instructions & Assumptions

1. Accessing the PSC Tool

Go to http://www.fhwa.dot.gov/ipd/pdfs/p3/P3-VALUE_PSC_Tool_v.1.1.xlsm

1. Open the tool.
2. Click “Enable Editing” and/or “Enable Content” on the yellow bar across the top of your screen.
3. Read the disclaimer and Click “I accept.”

2. Managing the Input Fields

1. Navigate to the “Assumptions” Sheet.
2. Input data in the light blue cells.
    a. Define the project.
        i. Select “Example Scenario” from the “Project” drop down menu.
        ii. Select “Toll Scenario Template”
        iii. Check the applicable boxes under “Project Delivery Structure” to reflect the project/scenario. (For this assignment, you should check all five boxes: Design-Build; Finance; Operation; Maintenance; Toll Collection)
        iv. Complete the “Timing” table with appropriate dates in ‘YYYY’ format or in number of years.

v. **Note:** The concession period, construction end, operations end, and tolling start are calculated after the input values are entered.

Use the following assumptions to define the project:

Project: Choose "Example Scenario"

Traffic Scenario: choose: Toll Scenario Template

Project Delivery Type: Check all boxes, including Toll Collection (Design Build, Finance, Operation, Maintenance, Toll Collection)

Project Schedule:

- Base Year: 2013
- Construction Period: 2 years; Construction Start: 2014
- Operations Period: 28 years; Operations Start: 2016
- Tolling Period and Tolling Start: You do not need to enter these values, they are made equal to the Operations Period and Operations Start values.

b. Estimate project costs.

i. There are no "Other Project Costs", Zero out any dollar costs in Column E under "Other Project Costs". Enter "Construction Costs" in line 1. Input a description of the "Asset Type" (in Column D), cost in dollars (in Column E), and a breakdown of the expenditure across the design and construction phase as a percentage.
Note: The "Year" columns will turn from light grey to blue as values are input. The "Check Sum" value (Column P) should equal 100% once the costs are allocated to year of expenditure. You may need to delete any values in years beyond year 2, which may be hidden due to the darkened cells.

ii. Input operations and maintenance costs in the "Operating Costs" table as a dollar figure (in Column F).

Note: If a user chooses to input O&M costs as dollar values, the adjacent cells in column E black out so that the inputs are only either dollar values or percentages.

Use the following cost assumptions:

Other Project Costs:

- There are no other project costs – zero out any costs in this section

Construction Costs

- Construction Costs: Asset Type: Road; $100,000,000 (Year 1: 30%; Year 2: 70% (because a software bug prevents the user from inputting 70% currently, you will need to zero out Year 1 first, then input 70% in Year 2, and finally input 30% in Year 1); Zero out the values for all other years: Years 3-10: 0%)
Note: It is necessary to first input the Year 2 of the construction cost profile before entering the value for Year 1.
- Annual Operating Costs: $5,000,000
- Annual Maintenance Costs: $5,000,000

c. Enter Toll & Other Revenue assumptions. Note: Cells regarding toll revenue leakage (percentage), revenue ramp-up assumptions, and value of additional revenues (in dollars) in the "Toll & Other Revenue" table should be available to be filled in if you selected the appropriate project delivery structure.
   i. Input "Toll Revenue Leakage" as a negative percentage.
   ii. Input "Toll Revenue Ramp Up" assumptions as negative percentages, i.e., %reduction. Make sure you zero out any values in years beyond year 2.

Use the following assumptions for Toll & Other Revenue:

- Toll Revenue Leakage: -5%
- Revenue Ramp Up Year 1: -67%; Year 2: -33%; Year 3 -6: 0%
- Zero out "Other Revenue" sources. There is no other revenue.

d. Under the "Funding" section input zeroes for project funding and other funding, since there is no project subsidy.
e. Input the percent of project to be financed after taking into account other funding. Note: This will be 100% since we assume that the hypothetical project is not expected to receive any subsidy.
f. Enter additional financing information in the "Financing" table.

Use the following financing assumptions:

- Project Subsidy: % of Construction Cost: 0%; Or $ of Subsidy: $0
- % of Project Financed: 100%
- Debt Start Date: 2014; Maturity: 30 years
- Issuance Fee: 2%; Interest Rate: 5%
- Payment Schedule: Semi-Annual
- Debt Type: Draw (use the drop down arrow to change debt type)
- Annual DSCR: 1.2
- Grace period: 0

g. Apply appropriate adjustments.
   i. Input inflation assumptions as percentages in the "Inflation" table.
   ii. Input the risk allocations and values of cost and schedule impacts in the "Risk Allocation" and "Risk Values" tables.
   iii. Input the discount rate as a percentage.

Use the following other assumptions:

Inflation

- CPI: 3%
- Construction Phase: 0% (Construction costs have been entered in nominal dollars)
- Operations Phase: 3%
- Toll Rate: 3%

Risk Allocation

- Design-Build Phase - % Public (Retained): 80%; % Private (Transferrable): 20%
- Operations Phase - % Public (Retained): 100%; % Private (Transferrable): 0%
- Schedule Allocation: all four entries should be 0%

Risk Values

- Design-Build Cost Impact: (P10) $10,000,000; (P70): $20,000,000; (P90): $30,000,000
- Operations Phase Cost Impact (P10): $28,000,000; (P70): $56,000,000; (P90): $84,000,000
- Design-Build Schedule Impact: all values are $0;
- Operations Phase Schedule Impact: all values are $0

Discount Rate

- Nominal Discount Rate: 5%

PSC Adjustments

- None

Other Project Costs

None

3. Compare your input sheet to the "P3-VALUE PSC Tool Assumptions Screenshots" below.

4. Navigate to the "**Toll Scenario Template**" worksheet
   i. Enter a toll rate in base year dollars in Cell C3, 2 axle vehicles/Toll Section 1.
   ii. Enter annual traffic figures in Row 36 for Year 1 - Year 28.
   iii. Click the "Update" button (cell G5).
   Note: You can use the Excel drag-and-drop function to repeat the value in multiple years.

Use the following assumptions for the Toll Scenario Template:

Toll Rates

- Enter for Toll Rate for 2 Axle Vehicles/Toll Section 1: $2.00 (cell C3)

Operating Year

- Annual Traffic (000s) for 2 Axle Vehicles/Toll Section 1 (Years 1- 28): 7,884 (cells: B36-AC36)

5. Compare your input sheet to the “P3-VALUE PSC Tool – Toll Scenario Template Screenshots” below.

3. Reviewing the Outputs

1. Navigate to the “PSC Disclaimer” Sheet. It is the last tab of the workbook.
2. Read the disclaimer and click “I accept.”
3. Navigate to the “PSC Outputs” Sheet. You will automatically be taken to this worksheet upon clicking “I accept.” This sheet displays the PSC results in tabular and graphic formats as well as a sensitivity analysis and scenario analysis.
4. Review the results in the "PSC Results" table and compare your results to those in the “P3-VALUE PSC Tool – PSC Output Screen Shot (Draw)” below.
   Note the value in the 'Total Payments after Toll and Other Revenue' line (row 18). This value represents the cost to the procuring agency to deliver this project after subtracting funding subsidies. Funding subsidies could come from other public agencies, or could be financed by the procuring agency from a revenue stream not obtained from the project, such as taxes.
5. If you want to run a sensitivity analysis, select a risk percentile and value ($ or %) for the sensitivity analysis and click “run sensitivity.”
   Note: this may take several minutes to calculate.
6. To perform a scenario analysis, adjust assumptions in the “Scenario Analysis” table on the right using the arrows, and view the results in the PSC results table.

4. Next Steps

1. If you performed a scenario analysis, you will need to change your assumptions back to the original assumptions.
2. **Save a local copy of the tool as “p3_value_psc_tool_Draw_v1”**
3. Return to the “Assumption” sheet and adjust your financing assumptions by selecting “bond” from the drop-down menu in cell J71.
4. Return to the “PSC Disclaimer” sheet and click “I Accept.”
5. Review the results in the “PSC Results” table and compare your results to those in the “P3-VALUE PSC Tool – PSC Output Screenshot (Bond)” below.
6. **Save a local copy of the tool as “p3_value_psc_tool_Bond_v1”**
7. Close the PSC Tool and move on to Part 2 of the assignment: Shadow Bid Tool.

PSC Tool Assumptions Screenshots

Project	Example Scenario
Traffic Scenario	Toll Scenario Template
Project Delivery Structure	☑ Design Build
	☑ Finance
	☑ Operation
	☑ Maintainance
	☑ Toll Collection

Timing	Assumption	Value (Date - YYYY or No.)
	Base Date (year)	2013
	Concession Period (years)	30
	Construction Period (no. of years)	2
	Construction Start (year)	2014
	Construction End	2015
	Operations Period (no. of years)	28
	Operations Start (year)	2016
	Operations End	2043
	Tolling Period (no. of years)	28
	Tolling Start (year)	2016
	Tolling End	2043

Other Project Costs	Cost Type	Total Cost ($)	Start Date (Select From Drop-Down Menu)	End Date (Select From Drop-Down Menu)
	Land / ROW	-	Base Date	Construction Start
	Procurement / Transaction	-	Base Date	Construction Start
	Quality Assurance	-	Construction Start	Construction End
	Related Works	-	Construction Start	Construction End
	Owner Costs	-	Base Date	Construction End
	Other Misc Project Costs	-	Base Date	Base Date
	Other Project Costs 2		Base Date	Base Date
	Other Project Costs 3		Operating Start	Base Date

Construction Costs	Asset Type	Cost ($)		
			Year 1	Year 2
1	Road	100,000,000	30.00%	70.00%

PSC Tool Assumptions Screenshots (cont.)

Operating Cost	Cost Type	% of Construction	or $ Amount	Period (No. of Years)							
	Annual Operating Cost		5,000,000	1							
Maintenance Cost	Annual Routine Maintenance Cost		5,000,000	1							
	Periodic Maintenance Cost	0.00%	-	8							
Toll & Other Revenue	Revenue Leakage	% Per Period									
	Toll Revenue Leakage	-5.00%									
	Revenue Ramp Up		Year 1 (%)	Year 2 (%)	Year 3 (%)	Year 4 (%)	Year 5 (%)	Year 6 (%)			
	Toll Revenue Ramp Up		-67.00%	-33.00%	0.00%	0.00%	0.00%	0.00%			
	Other Revenue	Value ($)									
	Annual Non-Road Pricing Revenue	-									
	Other Annual Revenue 1	-									
	Other Annual Revenue 2	-									
Funding	Funding Type	% of Construction Cost	Or $ of Subsidy	Subsidy Profile (%)							
				Year 1	Year 2	Year 3	Year 4	Year 5	Year 6		
	Project Subsidy		-								
	Other Funding 1										
Financing	% Of Project Financed	%									
	% Project Financed After Funding	100.00%									
	Tranche	Start Date (YYYY)	Maturity (No. of Years)	Issuance Fee (%)	Interest Rate (%)	Payment Schedule (Select From Drop-Down Menu)	Debt Type (Select From Drop-Down Menu)	Annual DSCR (number)	Grace Period (No. of Semi-Annual Cash Flow Periods)		
	Debt	2014	30	2.00%	5.00%	Semi Annual	Bond	1.2	0		
Inflation	Index	%									
	CPI	3.00%									
	Other Index 2- Construction Phase	0.00%									
	Other Index 3 - Operations Phase	3.00%									
	Other Index 4 - Toll Rates	3.00%									
Risk Allocation	Allocation	Cost Allocation (%)	Schedule Allocation (%)								
	Design Build Phase - % Public (Retained)	80.00%	100.00%								
	Design Build Phase - % Private (Transferable)	20.00%	0.00%								
	Operations Phase - % Public (Retained)	100.00%	100.00%								
	Operations Phase - % Private (Transferable)	0.00%	0.00%								
Risk Values	Value (Real Dollars)	P10 ($)	P70 ($)	P90 ($)							
	Design Build Cost Impact	10,000,000	20,000,000	30,000,000							
	Operations Phase Cost Impact	28,000,000	56,000,000	84,000,000							
	Design Build Schedule Impact	-	-	-							
	Operations Phase Schedule Impact	-	-	-							
Discount Rate	Rate Type	Rate (%)	Rate Applied to Cash Flows (%)								
	Nominal Discount Rate	5.00%	5.00%								
PSC Adjustments	Adjustment Type	$									
	Construction Phase Adjustment (annual adjustment during construction)	-									
	Operating Phase Adjustment (annual adjustment during operations)	-									
	Other Construction Phase Adjustment (total adjustment value during construction)	-									

P3-VALUE PSC Tool – Toll Scenario Template Screenshot

Toll Rates	Motorcycle	2 axle vehicles	3 axle vehicles	4 or more axle vehicles
Toll Section 1		$2.00		
Toll Section 2				
Toll Section 3				
Toll Section 4				
Complete For Additional Rate Structures				
Toll Section 1				
Toll Section 2				
Toll Section 3				
Toll Section 4				
Complete For Additional Rate Structures				
Toll Section 1				
Toll Section 2				
Toll Section 3				
Toll Section 4				

Update

Operating Year	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**
	2016	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**
Motorcycles	**('000s)**	**('000s)**	**('000s)**	**('000s)**	**('000s)**	**('000s)**	**('000s)**	**('000s)**	**('000s)**	**('000s)**	**('000s)**	**('000s)**	**('000s)**	**('000s)**	**('000s)**	**('000s)**	**('000s)**	**('000s)**	**('000s)**	**('000s)**	**('000s)**	**('000s)**	**('000s)**	**('000s)**	**('000s)**	**('000s)**	**('000s)**	**('000s)**
Toll Section 1																												
Toll Section 2																												
Toll Section 3																												
Toll Section 4																												
Complete For Additional Rate Structures																												
Toll Section 1																												
Toll Section 2																												
Toll Section 3																												
Toll Section 4																												
Complete For Additional Rate Structures																												
Toll Section 1																												
Toll Section 2																												
Toll Section 3																												
Toll Section 4																												
2 axle vehicles																												
Toll Section 1	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884
Toll Section 2																												
Toll Section 3																												
Toll Section 4																												

P3-VALUE PSC Tool – PSC Output Screenshot (Draw)

Nominal Discount Rate	Results - Initial Project Payment ($)		Results - Risk Adjusted Payments ($)		
5.00%	Nominal Value of Initial Project Payments	Present Value (PV) of Initial Project Payments	PV of Payments with P10 Risk Adjustment	PV of Payments with P70 Risk Adjustment	PV of Payments with P90 Risk Adjustment
Payment Item					
Design and Construction After Subsidy #	-	-	-	-	-
Construction Phase Transferrable Risks #	-	-	-	-	-
Construction Phase Retained Risks #	-	-	-	-	-
Operations	239,823,466	101,692,152	101,692,152	101,692,152	101,692,152
Routine Maintenance	239,823,466	101,692,152	101,692,152	101,692,152	101,692,152
Periodic Maintenance	-	-	-	-	-
Operations Phase Transferrable Risks	-	-	20,338,430	40,676,861	61,015,291
Operations Phase Retained Risks	-	-	-	-	-
Other Project Costs (ROW etc)	-	-	-	-	-
PSC Adjustments	-	-	-	-	-
Principal Debt Payments	100,000,000	38,013,528	41,890,908	45,768,288	49,645,668
Interest & Fee Payments	96,791,799	55,058,301	61,154,273	67,250,245	73,346,216
Total Payments	**$ 676,438,731**	**$ 296,456,133**	**$ 326,767,915**	**$ 357,079,697**	**$ 387,391,479**
Toll and Other Revenue	**(700,700,670)**	**(290,082,714)**	**(290,082,714)**	**(290,082,714)**	**(290,082,714)**
Total Payments After Toll and Other Revenue	**$ (24,261,939)**	**$ 6,373,419**	**$ 36,685,201**	**$ 66,996,983**	**$ 97,308,765**

P3-VALUE PSC Tool – PSC Output Screenshot (Bond)

Nominal Discount Rate	Results - Initial Project Payment ($)		Results - Risk Adjusted Payments ($)		
5.00%	Nominal Value of Initial Project Payments	Present Value (PV) of Initial Project Payments	PV of Payments with P10 Risk Adjustment	PV of Payments with P70 Risk Adjustment	PV of Payments with P90 Risk Adjustment
Payment Item					
Design and Construction After Subsidy #	-	-	-	-	-
Construction Phase Transferrable Risks #	-	-	-	-	-
Construction Phase Retained Risks #	-	-	-	-	-
Operations	239,823,466	101,692,152	101,692,152	101,692,152	101,692,152
Routine Maintenance	239,823,466	101,692,152	101,692,152	101,692,152	101,692,152
Periodic Maintenance	-	-	-	-	-
Operations Phase Transferrable Risks	-	-	20,338,430	40,676,861	61,015,291
Operations Phase Retained Risks	-	-	-	-	-
Other Project Costs (ROW etc)	-	-	-	-	-
PSC Adjustments	-	-	-	-	-
Principal Debt Payments	119,235,597	48,231,007	58,070,133	67,909,258	77,748,384
Interest & Fee Payments	118,402,368	69,711,542	84,433,428	99,155,313	113,877,199
Total Payments	**$ 717,284,897**	**$ 321,326,853**	**$ 366,226,294**	**$ 411,125,736**	**$ 456,025,177**
Toll and Other Revenue	**(700,700,670)**	**(290,082,714)**	**(290,082,714)**	**(290,082,714)**	**(290,082,714)**
Total Payments After Toll and Other Revenue	**$ 16,584,226**	**$ 31,244,139**	**$ 76,143,580**	**$ 121,043,021**	**$ 165,942,463**

Part 2: Developing the Shadow Bid

Developing a P3 Estimate, or Shadow Bid (SB), is the second step of a value for money analysis. Please use the Shadow Bid Tool in completing the second part of the assignment. Instructions for the set of basic assumptions to assist you in constructing the SB for the hypothetical project were provided earlier. You may find it useful to reference the PSC Tool and SB Tool User Manuals, accessible at http://www.fhwa.dot.gov/IPD/pdfs/p3/p3_value_shadowbid_manual_v1.pdf and at: http://www.fhwa.dot.gov/IPD/p3/toolkit/analytical_tools/shadow_bid_tool/toc.htm. Additionally, if you have any questions about the assignment, please send them to P3-VALUE@dot.gov.

Shadow Bid Tool Instructions & Assumptions

1. Accessing the Shadow Bid Tool

1. Go to http://www.fhwa.dot.gov/ipd/pdfs/p3/P3-VALUE_SB_Tool_v.1.1.xlsm.
2. Open the tool.
3. Click “Enable Editing” and/or “Enable Content” on the yellow bar across the top of your screen.
4. Read the disclaimer and Click “I accept.”

2. Managing the Input Fields

1. Navigate to the “Assumptions” Sheet.
2. Input data in the light blue cells.
    a. Define the project.
        i. Select “Example Scenario” from the “Project” drop down menu.
        ii. Select “Toll Scenario Template” from the “Traffic Scenario” drop down menu.
        iii. Check all the applicable boxes under “Project Delivery Structure” to reflect the project/scenario.(Design Build; Finance; Operation; Maintenance; Toll Collection)
        iv. Complete the “Timing” table with appropriate dates in ‘YYYY’ format or in number of years.
        Note: The concession period, construction end, and operations end are calculated after the start and end values are entered.
    b. Estimate project costs.

Use the following assumptions to define the project:

Project: Choose "Example Scenario"

Traffic Scenario: choose: Toll Scenario Template

Project Delivery Type: Check all boxes, including Toll Collection (Design Build, Finance, Operation, Maintenance, Toll Collection)

Project Schedule:

- Base Year: 2013
- Construction Period: 2 years; Construction Start: 2014; Construction End: 2015
- Operations Period: 28 years; Operations Start: 2016
- Tolling Start and Tolling Period: 2016 (You do not need to enter these values, as a default these values are equal to the operations period.)

i. Enter "Construction Costs" in line 1. Input a description of the "Asset Type" (in Column D), cost in dollars (in Column E), and a breakdown of the expenditure across the design and construction phase as a percentage.
Note: The "Year" columns will turn from light gray to blue as values are input. The "Check Sum" value (Column P) should equal 100 percent once the costs are allocated to year of expenditure. You may need to delete any values in years beyond year 2, which may be hidden due to the darkened cells.

ii. Input operations and maintenance costs in the "Operating Costs" table as a dollar figure (in Column F).
Note: If users choose to input O&M costs as dollar values, the adjacent cells in Column E black out so that the inputs are only either dollar values or percentages.

Use the following cost assumptions

Construction Costs

- Construction Costs: $100,000,000 (Year 1: 30%; Year 2: 70%; Zero out the values for all other years: Years 3-10: 0%)
- Annual Operations Costs: $5,000,000

Other Project Costs:

- There are no other project costs – zero out any costs in this section

Maintenance Costs:

- Annual Maintenance Costs: $5,000,000
- Periodic Maintenance Costs: 0% (It is not necessary to zero out the years per period)

c. Enter Toll & Other Revenue assumptions (same as for PSC Tool)

i. Input "Toll Revenue Leakage" as a negative percentage.

ii. Input Toll Revenue Ramp Up assumptions
Note: Cells regarding toll revenue leakage (percentage), revenue ramp-up assumptions, and value of additional revenues (in dollars) in the "Toll & Other

Revenue" table should be available to be filled in if you selected the appropriate project delivery structure.

Use the following assumptions for Toll & Other Revenue:

- Toll Revenue Leakage: -5%
- Revenue Ramp Up Year 1: -67%; Year 2: -33%;
- Zero out the values for all other years: Years 3-6: 0%

Other Revenue: Zero these out. There is no other revenue.

d. Enter Funding and Project Financing Assumptions:
   i. Input the percent of project to be financed after taking into account other funding. **Note:** Assume that the hypothetical project is expected to utilize 20% equity investment. Zero out the "project subsidy" and "other funding" rows.
   ii. Enter funding resources as a percent of construction cost (Column E) as zero.
   iii. Input the percent of project to be financed after taking into account other funding.
   iv. Enter additional financing information in the "Financing" table as shown below.
   v. Input the level of equity return (as a percentage).

Use the following funding and financing assumptions:

Funding

- Funding: Project Subsidy (Or $ of Subsidy): $0
- Other Funding 1: 0%

Project Financing

- % of Project Sourced from Debt: 80%
- Debt Start Date: 2014; Maturity: 30 years
- Issuance Fee: 0%; Interest Rate: 6%
- Payment Schedule: Semi Annual
- Debt Type: Draw
- Annual DSCR: 1.2
- Grace period: 0
- Equity Return: 12%

e. Enter Inflation, Discount Rate, VfM Efficiency Options, VfM Tax Options, and VfM Other Options assumptions. Apply appropriate adjustments as shown in the call-out box below:
   i. Input inflation assumptions as percentages in the "Inflation" table.
   ii. Select manual input for the discount rate type and enter the discount rate.
   iii. Enter private sector cost, schedule, and O&M efficiencies as percentages.
   iv. Input the Federal and State tax rates (percentages) that apply to the concessionaire.
   v. Enter the period (number of months) of working capital and indicate if a tax carry forward is to be applied by selecting from the drop-down menu.

f. Enter Depreciation, Risk Allocation, and Risk Values.

i. Input the Depreciation information for the asset(s). Enter the depreciation method, the asset life and residual value.
ii. Input the risk allocations and values of cost and schedule impacts in the “Risk Allocation” and “Risk Values” tables.

Use the following assumptions to apply appropriate adjustments:

Inflation

- CPI: 3%
- Construction Phase: 0% (Construction costs have been entered in nominal dollars)
- Operations Phase: 3%
- Toll Rate: 3%

Discount Rate

- Nominal Discount Rate: 5%

VfM Efficiency:

- Construction Cost Efficiency: 10%; Private Schedule Efficiency: 0%; Operating Efficiency: 5%; Maintenance Efficiency: 5%

VfM Tax Options

- Federal Taxes: 0%; State Taxes: 0%

Working Capital (select from drop down menu):

- 6 Months; Tax Carry Forward: Yes

Other Project Costs:

- There are no other project costs – zero out any costs in this section

Funding for Agency Costs:

- Agency Budget: 0%

Depreciation

- Depreciation Method: Straight Line; Asset Life: 30 years; Residual Value $1; Treatment: Expensed

Risk Allocation: Cost Allocation

- Design-Build Phase - % Public (Retained): 57.1%; % Private (Transferrable): 42.9% **Note:** Total risk costs are reduced by 12.5%, i.e., 25% of the 50% of risk costs transferred to the concessionaire; the allocations are (50%/ 87.5% = 57.1%) for retained risks, and (37.5%/87.5% = 42.9%) transferred risk costs
- Operations Phase - % Public (Retained): 0%; % Private (Transferrable): 100%
- Schedule Allocation: all four values should be 0%

Risk Values

- Design-Build Cost Impact: (P10) $8,750,000; (P70): $17,500,000; (P90): $26,250,000 **Note:** These costs are calculated based on a 25% reduction in the 50% of risk costs that are transferred to the concessionaire)
- Operations Phase Cost Impact (P10): $21,000,000; (P70): $42,000,000; (P90): $63,000,000 (i.e., a 25% reduction of the 100% of transferred risk costs)
- Design Build Schedule Impact: (P10): $0; (P70): $0; (P90): $0
- Operations Phase Schedule Impact: (P10): $0; (P70): $0; (P90): $0

Navigate to the "**Toll Scenario Template**" worksheet

i. Enter a toll rate in base year dollars in Cell C3, 2 axle vehicles/Toll Section 1.
ii. Enter annual traffic figures in Row 36 for Year 1 - Year 28 (Cells B36-AC36).
Note: You can use the Excel drag-and-drop function to repeat the value in multiple years.
iii. Click the "Update" button (cell G5).

Use the following assumptions for Toll Scenario Template Worksheet:

- Toll Rates: Toll Section 1: 2 axle vehicles: $2.
- Operating Year: 2 axle vehicles: Years 1-28: 7,884

7. Compare your input sheet to the "P3-VALUE Shadow Bid Tool – Assumptions Screenshots" below.

3. Reviewing the Outputs

1. Navigate to the "Shadow Bid Disclaimer" Sheet.
2. Read the disclaimer and click "I accept."
3. Navigate to the "VFM outputs" Sheet. This sheet displays the results in tabular and graphic formats as well as provides several analyses.
4. Select "Availability Payment" from the drop-down menu in cell B22.
5. Click "Payment Calculation" and review the results in cells C30 – F30 as well as in the "Value for Money Analysis Results" table beginning at row 50. Compare your results to the P3-VALUE Shadow Bid Tool – Output Screenshots (Availability Payment) below.
Note: the calculation may take several minutes to complete.
6. **Save a local copy of the tool as "p3_value_shadowbid_tool_AVAILABILITY_v1"**

4. Adjusting for Real Toll Assumptions

1. Return to the "Assumption" sheet and adjust your financing assumptions by entering 70% for debt in cell E61, 7% for the interest rate in cell H64, and 14% for equity return in cell E66 and
2. Return to the "Shadow Bid Disclaimer" sheet and click "I Accept."
3. On the "VfM Output" sheet, select "Real Toll" from the drop-down menu in cell B22.
4. Click the "Real Toll" button to run the analysis and review your results in cells C39 – F39 as well as in the "Value for Money Analysis Results" table beginning at row 50. Compare your results to the P3-VALUE Shadow Bid Tool – Output Screenshots (Real Toll Payment) below. Note the values in the final row, which represent the value of P3 delivery to the agency..
5. Adjust assumptions in the "Project Scenario Analysis" table using the arrows.
Note: If users change key assumptions, the message "Please Solve Again" will appear in the "VfM Analysis" or "VfM Scenario Analysis" box to update the payment information.

5. Next Steps

1. If you performed a scenario analysis, you will need to change your assumptions back to the original assumptions.
2. Navigate to the “Financial Statement” sheet.
3. Select ‘P70’ from the drop-down menu in the light-blue cell (F3).
4. Scroll down and click the “Optimize Dividend” button. Review the results.
5. **Save a local copy of the tool as “p3_value_shadowbid_tool_TOLL_v1”**
6. Close the Shadow Bid Tool and move on to Part 3 of the assignment: Calculating the Virtual Risk Premium.

P3-VALUE Shadow Bid Tool – Assumptions Screenshots

Project	Example Scenario
Traffic Scenario	Toll Scenario Template

Project Delivery Structure	☑ Design Build
	☑ Finance
	☑ Operation
	☑ Maintainance
	☑ Toll Collection

Timing	Assumption	Value (Date - YYYY or No.)
	Base Date (year)	2013
	Concession Period (years)	30
	Construction Period (no. of years)	2
	Construction Start (year)	2014
	Construction End	2015
	Operations Period (no. of years)	28
	Operations Start (year)	2016
	Operations End	2043
	Tolling Period (no. of years)	28
	Tolling Start (year)	2016
	Tolling End	2043

Construction Costs	Asset Type	Cost ($)	Year 1	Year 2
1	Road	100,000,000	30.00%	70.00%
2				
3				
4				
5				
6				
7				
8				

		Annual Cost		
Operating Costs		% of Construction	or $ Amount	Period (No. of Years)
	Annual Operating Cost		5,000,000	1
Other Project Costs (Concessionaire Costs)		Cost ($)	Start Date (Year) (Select From Drop Down Menu)	End Date (Year) (Select From Drop Down Menu)
	Other Cost 1	-	Construction End	Operation Start
	Other Cost 2	-	Operation Start	Operation End
Maintenance Costs		% of Construction	or $ Amount	Period (No. of Years)
	Annual Routine Maintenance Cost		5,000,000	1
	Periodic Maintenance Cost	0.00%	-	8

P3-VALUE Shadow Bid Tool – Assumptions Screenshots (cont.)

Toll & Other Revenue	Revenue Leakage	% Per Period
	Toll Revenue Leakage	-5.00%

Revenue Ramp Up	Year 1 (%)	Year 2 (%)	Year 3 (%)	Year 4 (%)	Year 5 (%)	Year 6 (%)
Toll Revenue Ramp Up	-67.00%	-33.00%				

Other Revenue	Value ($)
Annual Non-Road Pricing Revenue	-
Other Revenue 1	-
Other Revenue 2	-

Funding	Funding Type	% of Construction Cost	Or $ of Subsidy	Subsidy Profile Per Construction Year (%)					
				Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Project Subsidy	0.00%	-	0.00%	0.00%	0.00%	0.00%	0.00%	
	Other Funding 1	0.00%	-						

Project Financing	% Of Project Financed	%
	% of Project Finance Sourced From Debt (Remainder is Sourced From Equity)	80.00%

Debt	Start Date (YYYY)	Maturity (No. of Years)	Issuance Fee (%)	Rate (%)	Payment Schedule (Select From Drop-Down Menu)	Debt Type (Select From Drop-Down Menu)	Annual DSCR (Number)	Grace Period (No. of Semi-Annual Cash Flow Periods)
Debt 1	2014	30	0.00%	6.00%	Semi Annual	Draw	1.2	0

Equity	%
Equity Return	12.00%

Inflation	Index	%
	CPI	3.00%
	Other Index 2- Construction Phase	0.00%
	Other Index 3 - Operations Phase	3.00%
	Other Index 4 - Toll Rates	3.00%

Discount Rate		Type (Select from Drop-Down Menu)	Discount Rate (%)	Discount Rate Selected
	Discount Rate	Manual Input	5.00%	5.00%

VfM Efficiency Options		%
	Construction Cost Efficiency	10.00%
	Private Sector Schedule Efficiency	0.00%
	Operating Efficiency	5.00%
	Maintenance Efficiency	5.00%

VfM Tax Options		%
	Federal Tax	0.00%
	State Tax	0.00%

VfM Other Options		Period (No. of Months)
	WorkingCapital (Select From Drop Down Menu)	6
	Tax Carryforward Allowed? (Select From Drop Down Menu)	Yes

Depreciation Asset	Asset Type	Depreciation Method (Select from Drop-Down Menu)	Asset Life (No. of Years)	Residual Value ($)	Interest Expense Treatment (Select from Drop-Down Menu)
1	Road	Straight Line	30	1	Expensed
2					
3					
4					
5					
6					
7					
8					

P3-VALUE Shadow Bid Tool – Assumptions Screenshots (cont.)

Risk Allocation	Allocation	Cost Allocation (%)	Schedule Allocation (%)	
	Design Build Phase - % Public (Retained)	57.10%		
	Design Build Phase - % Private (Transferable)	42.90%		
	Operations Phase - % Public (Retained)	0.00%		
	Operations Phase - % Private (Transferable)	100.00%		
Risk Values	Value (Real Dollars)	P10 ($)	P70 ($)	P90 ($)
	Design Build Cost Impact	8,750,000	17,500,000	26,250,000
	Operations Phase Cost Impact	21,000,000	42,000,000	63,000,000
	Design Build Schedule Impact	-	-	-
	Operations Phase Schedule Impact	-	-	-
Other Project Costs (For Agency)	Type	Cost ($)	Start Date (Select from Drop-Down Menu)	End Date (Select from Drop-Down Menu)
	Land / ROW	-	Base Date	Construction Start
	Procurement / Transaction	-	Base Date	Base Date
	Quality Assurance	-	Construction Start	Construction End
	Related Works	-	Construction Start	Construction End
	Owner Costs	-	Base Date	Construction End
	Other Misc Project Costs			
	Other Project Costs 2			
	Other Project Costs 3			
Funding for Agency Costs	Funding Type	% of Agency Costs		
	Agency Budget	0.00%		

P3-VALUE Shadow Bid Tool – Toll Scenario Template Screenshot

Toll Rates	Motorcycle	2 axle vehicles	3 axle vehicles	4 or more axle vehicles
Toll Section 1		$2.00		
Toll Section 2				
Toll Section 3				
Toll Section 4				
Complete For Additional Rate Structures				
Toll Section 1				
Toll Section 2				
Toll Section 3				
Toll Section 4				
Complete For Additional Rate Structures				
Toll Section 1				
Toll Section 2				
Toll Section 3				
Toll Section 4				

Update

Operating Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Motorcycles	('000s)	('000s)	('000s)	('000s)	('000s)	('000s)	('000s)	('000s)	('000s)	('000s)	('000s)	('000s)	('000s)	('000s)	('000s)	('000s)	('000s)	('000s)	('000s)	('000s)	('000s)	('000s)	('000s)	('000s)	('000s)	('000s)	('000s)	('000s)
Toll Section 1																												
Toll Section 2																												
Toll Section 3																												
Toll Section 4																												
Complete For Additional Rate Structures																												
Toll Section 1																												
Toll Section 2																												
Toll Section 3																												
Toll Section 4																												
Complete For Additional Rate Structures																												
Toll Section 1																												
Toll Section 2																												
Toll Section 3																												
Toll Section 4																												
2 axle vehicles																												
Toll Section 1	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884	7884
Toll Section 2																												
Toll Section 3																												
Toll Section 4																												

Availability Payment

Payment Calculation

	Initial Project Estimate	P10	P70	P90
Annual Nominal Payment Amount:	15,116,071	16,187,500	17,285,714	18,397,321

Value for Money Analysis Results					
Manual Input	Initial Project Payments ($)		Risk Adjusted Payments ($)		
5.00% **Payment Item**	Nominal Value of Initial Project	Present Value (PV) of Initial Project	PV of Payments with P10 Risk Adjustment	PV of Payments with P70 Risk Adjustment	PV of Payments with P90 Risk Adjustment
Availability Payments	$ 725,037,729	$ 307,437,166	$ 329,228,341	$ 351,564,296	374,172,641
Construction Phase Retained Risks	$ -	$ -	$ 4,434,779	$ 8,869,557	13,304,336
Operations Phase Retained Risks	$ -	$ -	$ -	$ -	-
Other Project Costs (For Agency)	$ -	$ -	$ -	$ -	-
Total Payments Before Toll Revenue	*$ 725,037,729*	$ 307,437,166	$ 333,663,120	$ 360,433,853	387,476,976
Toll and Other Revenue	$ (700,700,670)	$ (290,082,714)	$ (290,082,714)	$ (290,082,714)	(290,082,714)
Total Payments After Toll Revenue	$ 24,337,059	$ 17,354,452	$ 43,580,406	$ 70,351,139	97,394,262

Real Toll calculation assumes one payment is made at the end of the construction period

The project assumptions should be reviewed before running any scenarios. Please consider how a scenario impacts the Project's Timing Assumptions; Design, Construction, Operations, Maintenance and Other Project Cost assumptions; Risk Values and Allocation; Revenue and Tolling assumptions; Project Financing assumptions; Tax and Depreciation assumptions; Discount Rate; and Efficiency assumptions.

Real Toll

Shadow Toll

	Initial Project Estimate	P10	P70	P90
Real Toll Payment:	36,626,953	49,113,922	63,486,944	87,006,139

Value for Money Analysis Results

Manual Input	Initial Project Payments ($)		Risk Adjusted Payments ($)		
5.00% **Payment Item**	Nominal Value of Initial Project	Present Value (PV) of Initial Project	PV of Payments with P10 Risk Adjustment	PV of Payments with P70 Risk Adjustment	PV of Payments with P90 Risk Adjustment
Availability Payments	$ 36,626,953	$ 31,639,739	$ 42,426,453	$ 54,842,409	75,159,174
Construction Phase Retained Risks	$ -	$ -	$ 4,434,779	$ 8,869,557	13,304,336
Operations Phase Retained Risks	$ -	$ -	$ -	$ -	-
Other Project Costs (For Agency)	$ -	$ -	$ -	$ -	-
Total Payments Before Toll Revenue	*$ 36,626,953*	$ 31,639,739	$ 46,861,231	$ 63,711,966	88,463,510
Toll and Other Revenue	$ -	$ -	$ -	$ -	-
Total Payments After Toll Revenue	$ 36,626,953	$ 31,639,739	$ 46,861,231	$ 63,711,966	88,463,510

Part 3: Calculating the Virtual Risk Premium for an Availability Payment

Shadow Bid Tool Instructions & Assumptions

1. Accessing the Shadow Bid Tool

1. Open the version of the Shadow Bid tool that you saved locally as "**p3_value_shadowbid_tool_AVAILABILITY_v1**" in Part 2.
2. Click "Enable Editing" and/or "Enable Content" on the yellow bar across the top of your screen.
3. Read the disclaimer and Click "I accept."

2. Record the Results for the "Risk-Free" Discount Rate

1. Navigate to the "Shadow Bid Disclaimer" Sheet.
2. Read the disclaimer and click "I accept."
3. Navigate to the "VFM outputs" Sheet.
4. ***Record the PV of Availability Payments with P70 Risk Adjustment (F54) in Table 1.***

3. Managing the Input Fields

1. Navigate to the "Assumptions" Sheet.
2. Change the discount rate (cell F77) to equal the Weighted Average Cost of Capital (WACC) calculated as follows: (80% x 6%) + (20% x 12%) = 7.2%

4. Reviewing the Outputs

1. Navigate to the "Shadow Bid Disclaimer" Sheet.
2. Read the disclaimer and click "I accept."
3. Navigate to the "VFM outputs" Sheet.
4. Select "Availability Payment" from the drop-down menu in cell B22.
5. Click "Payment Calculation" and review the results in cells C30 – F30 as well as in the "Value for Money Analysis Results" table beginning at row 50. Note the PV of public payments for the P70 scenario in cell F60.
6. Compare your results to the Availability Payment Concession at WACC DR (7.2%) screenshot below.

5. Calculating the Risk Premium

1. ***Record the PV of Availability Payments with P70 Risk Adjustment (F54) in Table 1.***
2. Calculate the PV of the virtual risk premium by subtracting the PV of the P70 availability payments at the WACC rate from the PV of the P70 availability payments at the risk-free rate. Record your results in Table 1.
3. **Save a local copy of the tool as "p3_value_shadowbid_tool_AVAILABILITY_v2"**

Table 1. Present Value of Virtual Risk Premium for Availability Payment Concession

	Availability Payment Concession (P70)
PV of payments to Concessionaire using a risk-free discount rate	
PV of payments to Concessionaire using WACC for an availability payment P3 as discount rate	
PV of risk premium based on difference	

PSC Tool Instructions & Assumptions

1. Accessing the PSC Tool

1. Open the version of the PSC tool that you saved locally as "**p3_value_psc_tool_Draw_v1**" in Part 1.
2. Click "Enable Editing" and/or "Enable Content" on the yellow bar across the top of your screen.
3. Read the disclaimer and Click "I accept."

2. Reviewing the Outputs

1. Navigate to the "PSC Disclaimer" Sheet.
2. Read the disclaimer and click "I accept."
3. Navigate to the "PSC Outputs" Sheet.
4. Review the results in the "PSC Results" table, paying particular attention to the values in column F.

3. Calculating the Risk Premium

1. Add the PV of the risk premium for an availability payment P3 (calculated in Table 1) to the PV of the PSC.
2. Compare the adjusted PV for the PSC to the PV of the availability payment concession.
3. Record your results in Table 2.

Table 2. Value for Money of Risk Premium Adjusted Availability Payment

Public Costs ($M) for P70 Scenario			
	P70 Risk-Adjusted NPC	**Additional P70 Concessionaire Risk** *(From Table 1)*	**P70 NPC Adjusted for Concessionaire Risks** *(Column 1 + Column 2)*
a) PSC ("draw" option)			
b) P3 Availability Payment concession		N.A.	
VfM (a – b)			

Part 4: Calculating the Virtual Risk Premium for a Toll Concession

Shadow Bid Tool Instructions & Assumptions

Step1: Calculating the Risk Premium allocated to Toll Revenues

1. Accessing the Shadow Bid Tool

1. Open the version of the Shadow Bid tool that you saved locally as "**p3_value_shadowbid_tool_AVAILABILITY_v1**" in Part 2.
2. Click "Enable Editing" and/or "Enable Content" on the yellow bar across the top of your screen.
3. Read the disclaimer and Click "I accept."

3. Reviewing the Outputs to get PV of Toll Revenues at a 5% project "risk-free" discount rate

1. Navigate to the "Shadow Bid Disclaimer" Sheet.
2. Read the disclaimer and click "I accept."
3. Navigate to the "VFM outputs" Sheet.
4. Select "Availability Payment" from the drop-down menu in cell B22.(It should already be selected)
5. Click "Payment Calculation" and review the results for toll revenues in the "Value for Money Analysis Results" table beginning at row 50. (see Availability Payment Concession
6. Record the PV of Toll Revenues with P70 Risk Adjustment (cell F59) for the 5% discount rate in Table 3, line 3.

4. Changing the Input Fields to Reflect the WACC for a toll concession as the discount rate

1. Navigate to the "Assumptions" Sheet.
2. Change the discount rate (cell F77) to equal the Weighted Average Cost of Capital (WACC), for a toll concession calculated as follows: (70% x 7%) + (30% x 14%) = 9.1%

5. Reviewing the Outputs to get PV of Toll Revenues at a 9.1% WACC-based project discount rate

1. Navigate to the "Shadow Bid Disclaimer" Sheet.
2. Read the disclaimer and click "I accept."
3. Navigate to the "VFM outputs" Sheet.
4. Select "Availability Payment" from the drop-down menu in cell B22.(It should already be selected)
5. Click "Payment Calculation" and review the results for toll revenues in the "Value for Money Analysis Results" table beginning at row 50.
6. Record the PV of Toll Revenues with P70 Risk Adjustment (cell F59) for the 9.1% discount rate in Table 3, line 4. Refer to screenshot for Availability Payment Concession at Toll Concession WACC DR (9.1%)

Step2: Calculating the Risk Premium allocated to Payments to Concessionaire

1. Accessing the Shadow Bid Tool

1. Open the version of the Shadow Bid tool that you saved locally as "**p3_value_shadowbid_tool_TOLL_v1**" in Part 2.
2. Click "Enable Editing" and/or "Enable Content" on the yellow bar across the top of your screen.
3. Read the disclaimer and Click "I accept."

3. Reviewing the Outputs to get PV of Payments to Concessionaire at a 5% project "risk-free" discount rate

1. Navigate to the "Shadow Bid Disclaimer" Sheet.
2. Read the disclaimer and click "I accept."
3. Navigate to the "VFM outputs" Sheet.
4. Select "Real Toll" from the drop-down menu in cell B22.(It should already be selected)
5. Click the "Real Toll" button and review the results for PV of payments to concessionaire (labeled as "Availability Payments" in the "Value for Money Analysis Results" table beginning at row 50.
6. Record the PV of payments to the concessionaire with P70 Risk Adjustment (cell F59) for the 5% discount rate in Table 3, line 1.

4. Changing the Input Fields to Reflect the WACC for a toll concession as the discount rate

1. Navigate to the "Assumptions" Sheet.
2. Change the discount rate (cell F77) to equal the Weighted Average Cost of Capital (WACC), for a toll concession calculated as follows: (70% x 7%) + (30% x 14%) = 9.1%

5. Reviewing the Outputs to get PV of payments to Concessionaire at a 9.1% WACC-based project discount rate

1. Navigate to the "Shadow Bid Disclaimer" Sheet.
2. Read the disclaimer and click "I accept."
3. Navigate to the "VFM outputs" Sheet.
4. Select "Real Toll" from the drop-down menu in cell B22.(It should already be selected)
5. Click the "Real Toll" button and review the results for PV of payments to concessionaire (labeled as "Availability Payments" in the "Value for Money Analysis Results" table beginning at row 50. Refer to screenshot for Toll Concession at WACC DR (9.1%)
6. Record the PV of payments to the concessionaire with P70 Risk Adjustment (cell F59) for the 9.1% discount rate in Table 3, line 2.

Step3: Calculating the Total Virtual Risk Premium

Calculating the Risk Premium

1. Following the instructions in Table 3, calculate the total virtual insurance premium for a toll concession.

Table 3. Toll Concession Virtual Insurance Premium

	Toll Concession (at P70)
1) PV of payments to Concessionaire using a risk-free discount rate	
2) PV of payments to Concessionaire using WACC for a toll concession P3 as discount rate	
(a) PV of risk premium based on difference (Row 1 - Row 2)	
3) PV of toll revenues using a risk-free discount rate	
4) PV of toll revenues using WACC of a toll concession P3 as discount rate	
(b) PV of risk premium based on difference (Row 3 - Row 4)	
Total virtual insurance premium (a + b)	

Step4: Comparing the VfM for Availability Payment vs. Toll Concessions

1. Using the results from Tables 1-3 complete Tables 4 and 5 to calculate the VfM for a toll concession and compare it to the VfM for an availability payment concession.

Table 4. VfM of Toll Concession with Virtual Insurance Premium

Public Costs ($M) at P70			
	P70 Risk-Adjusted NPC *(From Tables 2 & 3)*	**Additional P70 Concessionaire Risk** *(From Table 1)*	**P70 NPC Adjusted for Concessionaire Risks** *(Column 1 + Column 2)*
a PSC (“draw” option)			
b Toll concession (agency cost + tolls)		N.A.	
c ***VfM for toll concession*** *(Row A + Row B)*			

Table 5. Comparison of Toll Concession and Availability Payment Concession VfM

Public Costs ($M) at P70		
	Excluding Toll Revenue Risk (PSC vs. Availability Payment) *(From Table 2)*	**With Toll Revenue Risk (PSC vs. Toll Concession)** *(From Table 4)*
a PSC (“draw” option)		
b P3 Option		
VfM *(b-a)*		

Toll Concession at WACC DR (9.1%)

Value for Money Analysis Results			
Manual Input	Risk Adjusted Payments ($)		
9.10% **Payment Item**	PV of Payments with P10 Risk Adjustment	PV of Payments with P70 Risk Adjustment	PV of Payments with P90 Risk Adjustment
Availability Payments	$ 37,820,770	$ 48,888,889	67,000,130
Construction Phase Retained Risks	$ 4,040,418	$ 8,080,837	12,121,255
Operations Phase Retained Risks	$ -	$ -	-
Other Project Costs (For Agency)	$ -	$ -	-
Total Payments Before Toll Revenue	$ 41,861,188	$ 56,969,726	79,121,385
Toll and Other Revenue	$ -	$ -	-
Total Payments After Toll Revenue	$ 41,861,188	$ 56,969,726	79,121,385

Availability Payment Concession at Toll Concession WACC DR (9.1%)

Value for Money Analysis Results					
Manual Input	Initial Project Payments ($)		Risk Adjusted Payments ($)		
9.10% **Payment Item**	Nominal Value of Initial Project	Present Value (PV) of Initial Project	PV of Payments with P10 Risk Adjustment	PV of Payments with P70 Risk Adjustment	PV of Payments with P90 Risk Adjustment
Availability Payments	$ 725,037,729	$ 174,395,613	$ 186,756,790	$ 199,426,997	212,251,719
Construction Phase Retained Risks	$ -	$ -	$ 4,040,418	$ 8,080,837	12,121,255
Operations Phase Retained Risks	$ -	$ -	$ -	$ -	-
Other Project Costs (For Agency)	$ -	$ -	$ -	$ -	-
Total Payments Before Toll Revenue	*$ 725,037,729*	$ 174,395,613	$ 190,797,209	$ 207,507,834	224,372,974
Toll and Other Revenue	$ (700,700,670)	$ (160,346,423)	$ (160,346,423)	$ (160,346,423)	(160,346,423)
Total Payments After Toll Revenue	$ 24,337,059	$ 14,049,190	$ 30,450,786	$ 47,161,411	64,026,551