**P3 Financial Viability Exercise**

**Objectives of this exercise**

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

**Project Background**

A study was done previously by a state DOT to estimate Value for Money 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. The project information is as follows:

* 20 miles highway expansion
* Expansion from 3 lanes to 5 lanes in each direction:
  + 3 General Purpose Lanes (GPL)
  + 2 Managed Lanes (ML)
* Costs under PSC (excluding risks and financing):
  + Pre-construction & construction: $25M and $400M respectively
  + Routine O&M: $4M per year
  + Major maintenance: $10M (every 8 years)
* Preconstruction under PSC starts in 2015; 2 years duration
* Construction duration under PSC: 4 years, starting in 2017
* Operations period under PSC: 40 years, starting in 2021

**Analysis Steps**

**Part A:** Conventional Delivery

1. Test the impact of a lower DSCR requirement;
2. Test the impact of a longer debt maturity;
3. Test the impact of lower interest rates*.*

**Part B:** P3 Delivery

1. Test the impact of an optimistic scenario with reduced DSCR, increased debt maturity and lower interest rate;
2. Test the impact of increased leverage;
3. Test the impact of higher peak period toll rates*.*

**Process to Access the Financial Viability Module**

1. Open P3-VALUE 2.0 Excel file.
2. When opening the file, Excel may prompt you to approve the use of macros. To do so, click “Enable editing” and/or “Enable content” on the yellow bar across the top of the screen.
3. After the model opens, the following user form will appear.



1. Select the “Training Navigator” to access the training modules. The “Training Navigator” contains four training modules that provide limited access to only the most relevant inputs and outputs for a particular training session.
2. Select “Module 4: Financial Viability Assessment” and proceed with the steps below (Note that the Training Navigator window may be closed and reopened at any point. Also, the tool has already been optimized and therefore optimizing the tool is not required unless specified).

**Part A: Financial Viability of Conventional Delivery**

Levers in Conventional Delivery are:

* Project scope
* Debt terms:
  + Annuity re-payment vs. sculpted debt
  + DSCR
  + Debt maturity/grace period
  + Interest rate
* Revenue:
  + Toll rates

Conventional Delivery contains the following financial inputs:

* **Subsidy**: Public subsidy amount
* **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
* **Revenue**: Toll rates and traffic forecasts

Review the key project information in the ***InpFin*** and ***InpTraffic&Toll*** sheets of the model provided. Review the **Financing Outputs** and record the base case outputs in the Conventional Delivery Test Results table below. Then perform the following three tests:

1. Test the impact of a lower DSCR requirement: To do so, reduce the minimum DSCR requirement (I41 in ***InpFin*)** to 1.20x, optimize the model and record the results the Conventional Delivery Test Results table below.
2. Test the impact of a longer debt maturity: Increase the debt maturity (I36 in ***InpFin*)** to 40 years, optimize the model and record the results the Conventional Delivery Test Results table.
3. Test the impact of lower interest rates: Reduce the interest rate (I39 in ***InpFin***) to 3%, optimize the model and record the results the Conventional Delivery Test Results table.

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| **Scenario** | **Debt size  ($k,  N12)** | **Average calculated  DSCR (N7)** | **Minimum calculated DSCR (N8)** | **Subsidy ($k, N13+N14)** |
| Base Case: Sculpted with 30 yrs maturity, minimum DSCR 1.30x, 4% interest rate, default tolls |  |  |  |  |
| Test 1: Reduce minimum DSCR to 1.20x |  |  |  |  |
| Test 2: Increase debt maturity to 40 years |  |  |  |  |
| Test 3: Lower interest rate to 3% |  |  |  |  |

Below, please respond to the following question; we will also discuss it at the webinar:

1. Which test has the largest impact on the required subsidy? Why do you think this is the case?
2. Does the total funding (Debt size + Total Subsidy) change with each test? If there are changes, what might be the reason for the changes?
3. Compare the debt size for each of the above scenarios with the debt size under the P3 option. Can you explain the significant difference?

**Part B: Financial Viability of P3 Delivery**

Financial levers in P3 Delivery are:

* Project scope
* Financing terms:
  + Annuity debt re-payment vs. sculpted debt
  + DSCR
  + Debt maturity/grace period
  + Interest rate
  + Equity return required
* Revenue:
  + Toll rates and traffic forecasts

The P3 Option contains the following financing inputs:

* **Subsidy**: Subsidy amount
* **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
* **Revenue**: Toll rates and traffic forecasts

Review the key project information in the ***InpFin*** and ***InpTraffic&Toll*** sheets of the model provided. Review the **Financing Outputs** and record the base case outputs in the P3 Test Results table below. Then perform the following three tests:

1. Test the impact of an optimistic scenario with reduced DSCR, increased debt maturity and lower interest rate: Reduce the DSCR to 1.25x (I64 in ***InpFin***), increase the debt maturity (I59 in **InpFin**) to 35 years, and lower the interest rates (I61/I62 in ***InpFin***) to 5%, optimize the model and record the results in the P3 Test Results table below.
2. Test the impact of increased leverage: Increase the gearing/debt-to-equity ratio (I55 in ***InpFin***) to 80%-20%, optimize the model and record the results in the P3 Test Results table below.
3. Test the impact of higher peak period toll rates: Increase the peak weekday toll rate for 2-axle vehicles (L21 in ***InpTraffic&Toll***) by $0.25, optimize the model and record the results in the P3 Test Results table below.

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| --- | --- | --- | --- | --- | --- |
| **Scenario** | **Equity ($k,  N30)** | **Equity IRR % (N34)** | **Minimum DSCR  (N23)** | | **Concession fee/subsidy  ($k, N28+N29)** |
| Base Case: Sculpted with 30-yr maturity, minimum DSCR 1.30x, gearing 75%-25%, 6% interest rate, default toll rates |  |  | |  |  |
| Test 1: Reduce DSCR to 1.25x, increase maturity to 35 years, lower interest rate to 5% |  |  | |  |  |
| Test 2: Increase gearing to 80%-20% |  |  | |  |  |
| Test 3: Increase peak tolls for 2-axle vehicles by $0.25 |  |  | |  |  |

Below, please respond to the following questions (we will also discuss it at the webinar):

1. Which test has the largest impact on the required subsidy? Why do you think this is the case?
2. Why does the Equity contribution increase for Test 1 and decrease or stay about the same for Tests 2 and 3?
3. Why does the Minimum DSCR drop in Test 2 but remains constant in Test 3?

**Thank you for your efforts! To receive a certificate from FHWA’s Office of Innovative Program Delivery acknowledging your participation in the Webinar and completion of the exercise, please email your completed answers by Monday, March 28 at 10:00am Eastern to Patrick DeCorla-Souza at:** [**patrick.decorla-souza@dot.gov**](mailto:patrick.decorla-souza@dot.gov)