



## CBA Builder Simple Worksheet 2: Football Stadium

You are required to perform a project appraisal for a new football stadium which is being considered by Danchester FC. The new stadium will be constructed on a new clear out-of-town site. The idea of the new stadium is therefore popular with the city council of Danchester who see the movement of the stadium to an out-of-town location as a good way of reducing traffic congestion in the city. Danchester FC are considering two possible options for their new stadium. Option 1 is a smaller stadium, with low costs. Meanwhile, option 2 requires a much greater investment but provides a much bigger stadium capable of holding larger crowds, and provides a number of additional facilities which will allow for a higher ticket price to be charged. You have been recommended to use a discount rate of 3%.

### Option 1: Costs

The site will need to be purchased at a cost of £1.1m and the planning process will have to be completed (although agreement in principle has already been reached with the City council). The cost of planning is estimated as £50,000. Both the purchase of the land and the planning agreement must be in place before construction of the new stadium can begin. These costs are the same regardless of which option is chosen.

Construction is estimated to take one year, as the stadium will use a number of pre-fabricated elements. Construction costs estimated by the contractor, which occur in year 0, include site

clearance and preparation (including foundations) estimated at around £1.2m. The prefabricated elements of the stands cost £2m, plant rental costs £40,000 per month (required for all 12 months).

Wages for 80 workers cost £8 per hour, and a site manager costs £22 per hour. Estimated staffing times are 40 hours per week all year (47 weeks) for the site manager, and 38 hours per week for 80 workers all year (47 weeks).

The stadium will require around 10 new employees, who will perform a range of jobs (including refreshments serving, cleaning etc.). There is an associated one-off human resource cost associated with the advertising, interviewing, and training of these staff which is estimated at £22,000. This cost will also occur in year 0.

### Option 1: Ongoing Costs

A number of ongoing costs need to be considered in the CBA. These costs need to be considered for the whole CBA period (i.e. 20 years). These include the wages of the staff discussed above, as well as the other 15

employees who will be transferred over from the existing stadium. The annual salary for the staff is £14,000 each. The growth rate for all staff wages is 1.5%, but all of these staff will not begin working until year 1.

In addition, there is a significant maintenance cost associated with the stadium estimated at £150,000 per annum. This cost will be incurred from year 1 onwards, and will grow at a rate of 4% per annum as the stadium ages.

### **Option 1: Benefits**

The benefits of the stadium mainly relate to income from ticket receipts. Danchester FC have an average attendance of 13,500 in their current stadium, so this will be used as a benchmark figure, although the option 1 stadium can hold up to 15,000 fans. Tickets are currently priced at £10 per match. Danchester FC have 23 home matches per annum. These benefits will begin in year 1, and grow at a rate of 4% per annum.

### **Option 2: Costs**

Option 2 involves building a larger stadium with associated greater costs. The larger stadium will hold some 20,000 fans. The costs are as follows (all occur in year 0):

- Site purchase = £1.1m
- Planning process = £50,000
- Site clearance and preparation (including foundations) = £2.75m.
- Prefabricated elements of the stands = £4.8m
- Plant rental costs £60,000 per month (required for all 12 months).
- Wages for 100 workers at £8 per hour (38 hours per week for 47 weeks)
- Wages for site manager at £22 per hour (40 hours per week for 47 weeks).
- HR costs for 15 new employees = £32,000.

### **Option 2: Ongoing costs**

Ongoing costs are the same as for the smaller stadium but are more expensive due to the size of the option 2 stadium. These costs should be considered for the whole period. Ongoing costs are as follows:

- Wages for 30 employees at £14,000 each per annum. Growth rate of staff wages = 1.5%.
- Maintenance cost = £250,000 per annum (grows at 4% as stadium ages).

### **Option 2: Benefits**

The benefits of the stadium remain the same. However, the extra facilities at the stadium mean that Danchester FC will be able to charge fans £15 per game.

### **Questions**

1. Using the data on costs and benefits provided what is the NPV and BCR associated with Option 1 given a CBA period of twenty years?
2. Using the data on costs and benefits provided what is the NPV and BCR associated with Option 2 given a CBA period of twenty years?
3. Given the results of the NPV and BCR which option should be chosen?
4. Assume that the new stadium attracts more fans to Danchester FC and the club now manages to fill its stadium. If option 1 is chosen this will result in an average gate of 15,000 fans. If option 2 is chosen this will result in an average gate of 20,000 fans. How does this affect the results of the CBA (NPV and BCR values)?