

TOOL A.3

DERIVING THE HISTORICAL THROUGH LIFE COST BASELINE

1. INTRODUCTION

In the majority of cases when considering a new capital development, the Client will prepare a business case setting out the business needs for the project. As part of the business case the Client is likely to include some form of high level investment appraisal, giving an initial assessment of the likely capital and through life costs, as well as the desired life expectancy of the project and the cost of financing the project.

Once the decision has been made to proceed with the project, the Client will set out the project's requirements in a Strategic Brief. In the majority of cases the development of the Strategic Brief will require further consultation with the project stakeholders. This further consultation process may result in the introduction of minor changes.

Following the completion of the Strategic Brief the Client may elect to prepare a more detailed cost baseline, either as a check against the initial investment appraisal calculated during the preparation of the business case or as a result of changes introduced during the preparation of the Strategic Brief.

The Cost Baseline can be expressed in Capital Cost terms alone or as a Through Life Cost (TLC) based on the planned life of the building. This figure will incorporate the Capital Cost in the discounted cash flow model which is used to calculate the Through Life Cost as a Net Present Value (NPV).

We look first, then, at the calculation of the Capital Cost Baseline.

2. PREPARATION OF THE CAPITAL COST.

A capital cost can be established utilising instructions as detailed in the RICS Standard Form of Cost Analysis. Elemental formats should be used where practicable as this format will assist Prime Contractors in setting their own cost targets as well as allowing a clearer understanding of the spread of cost within the project. The ideal is to have a capital cost baseline which can easily be broken down into cost targets for each Cluster to design and deliver to - or to beat.

The following factors should be used in calculating the capital cost.

1.1. Specification

An outline specification giving the form of construction, number of storeys, gross internal floor areas, and primary heat source is to be provided as the

basis of the capital cost. The specification will provide the Client with a clear audit trail when validating the Prime Contractor's through life cost model.

1.2. Cost Data

Cost data for insertion in the Standard Form of Cost Analysis can be obtained from one of the following sources:-

- Building Cost Information Services (BCIS) of the RICS
- Client's Reference Cost System
- Consultants in-house cost data library
- Reference books

1.3. Indexation

Cost data can be updated to current value utilising the indices published by the BCIS or the Public Sector depending on the source of the cost data.

1.4. Location

The geographical location of the site will give rise to an adjustment to the cost data. Location factors are published by the BCIS and the Public Sector for use with the relevant cost data.

1.5. Market Conditions

In establishing the Capital cost, a short report should be prepared on the current level of tendering in the location of the site reviewing the availability of labour and materials.

1.6. Site Remediation

Should it be applicable, an allowance should be made, expressed at NPV, for returning the site of the building to its present condition at the end of the prescribed through life cost term. This allowance could include for costs of such items as demolition, decontamination etc.

1.7. Abnormal Costs

Site conditions with regard to access, proximity of other buildings and construction difficulties related to topographical, geological or climatic conditions can give rise to additions to the base estimate and are to be reviewed on a project by project basis.

1.8. Risk Assessment

A risk assessment will be required which reviews all the factors that could affect the Capital Cost. The methodology developed for the Project (Tool A.6) can to be utilised with the average risk sum being added to the Capital Cost.

When the Capital Cost estimate is completed, a comparison should be made to buildings of a similar nature highlighting the "Abnormal Costs" to ensure that the proposed building falls within the criteria set down by the Client.

3. THE HISTORICAL THROUGH LIFE COST BASELINE

The TLC Baseline of a proposed building is prepared where the Client's budget holder requires a more detailed and robust benchmark for a comprehensive investment appraisal and against which a Prime Contractor's firm price Through Life Cost model can be validated.

In establishing the TLC Baseline the following principles should be followed:-

- establish the capital cost in the way described above
- determine the design life of the building and requirement for residual value
- establish the form of the discounted cash flow model to be used to calculate the Net Present Value of the building over its design life (for an example of a discounted cash flow model, see Tool C.4.
- determine the discount factor to be used
- populate the model with historical data on Capital Replacement Costs, Maintenance Costs, and Occupancy Costs, allocating each to the year in the model in which it is estimated that costs will be incurred.

The result of this exercise will be the Net Present Value of the building, which is the sum of money at today's prices which would need to be set aside to finance the construction of the building and its running and maintenance throughout its design life.

There is limited data on any of the costs which are needed to populate the cash flow model, although more is becoming available as clients take more interest in through life costs.

We now look in more detail at sources of such data.

2.1. CAPITAL REPLACEMENT COSTS

During the life of the building, the capital cost of replacing materials should be calculated and entered in the cost model in the year in which the replacement is expected to be needed. The cost of replacing material should allow for all disruption and management costs.

The life span of materials used in construction can be obtained from a number of sources including:-

- HAPM
- Manufacturer's Data

2.2. MAINTENANCE COSTS

Having prepared the Capital Cost estimate on the basis of an outline specification, the Maintenance Costs over the life of the building can be

calculated and entered in the cost model in the years in which they are expected to occur. Cost should be included for all anticipated day to day maintenance of the building(s), services installations and grounds. Data for this calculation are to be obtained from

- The Building Management Information Services (BMIS) of the RICS
- Review of data published by HAPM

The maintenance costs should allow for all disruption and management costs.

2.3. OCCUPANCY COSTS

The Occupancy Costs of the project over the prescribed life of the building are to be calculated and entered year by year into the cost model. In the majority of cases, occupancy costs will be dominated by utility costs; however, in some cases it may be desirable to extend the occupancy costs to include such items as security, catering, portage etc. Data can be obtained from a variety of sources including:-

- BMIS
- Facilities Managers
- Published Data

4. CALCULATIONS.

These are done by using the cost model shown in Tool C.4. The final TLC Baseline can be used as the Target Cost for the project - or, better still, a target which should be beaten by an agreed percentage.

Collaborating for the Built Environment (Be) – www.beonline.co.uk

Be is an independent body formed from a merger of the Reading Construction Forum and the Design Build Foundation in 2002. Its 100 member organisations come from the demand and supply chains of the 'industry formerly known as construction', ranging from public sector and private sector clients and developers to contractors, designers, consultants, specialists and suppliers. It leads research and implementation activities in support of a vision of delivering integrated built environment solutions through collaborative working.

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Collaborative Working Centre – www.collaborativeworking.co.uk

The Collaborative Working Centre of Be is a not-for-profit organisation set up from members of the team that facilitated *Building Down Barriers* to provide consultancy, training and other continuous improvement services to support the development and implementation of collaborative working.

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