Cost Estimator

Cost Estimators are used to provide cost information for assets where detailed cost information is not available. They may also be used where it would be unrealistic to collect and specify the information for individual assets. Cost estimators can be used to provide both asset installation costs and asset rehabilitation costs.

For collection networks, cost estimators can be used with the Depreciation Cost Reports and Rehabilitation Cost Reports to generate summaries of depreciation and rehabilitation costs for the network assets.

Cost Estimator data is viewed and edited on the Cost Estimator Editor. The editor is either split into two pages providing Pipe Costs and Cost Index information (distribution networks) or three pages providing Node Costs, Pipe Costs and Cost Index information (collection networks).

Updating the Network Using the Cost Estimator

Cost estimators must be dragged and dropped onto a network to update it. The Cost Estimate Options dialog is displayed for input of the year for the calculations. When applying a cost estimator to a network, it is possible to assign a flag to the cost estimator so that it is easy to see which asset fields have been calculated using the cost estimator.

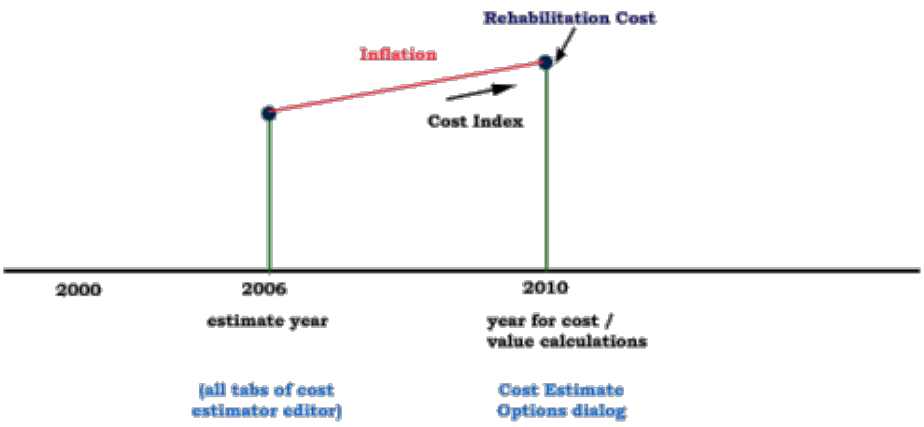
As costs vary from year to year, each cost estimator has an estimate year to define the date for which the cost estimate is valid. Costs for earlier or later years may then be derived using an appropriate cost index. The user is also expected to specify whether the costs are estimate of installation costs or rehabilitation costs. This prevents the cost estimate being used with an incompatible report type.

Installation / rehabilitation costs

Installation costs are defined as the total costs incurred to install the asset, including all material and personnel costs.

Rehabilitation costs are the costs required to return an asset from an unacceptable condition to the condition defined by the organisation as acceptable. Obviously the definition of what is an acceptable or unacceptable condition will vary from organisation to organisation. The objective is make estimates that are appropriate for the assumptions used within an individual organisation.

Show me

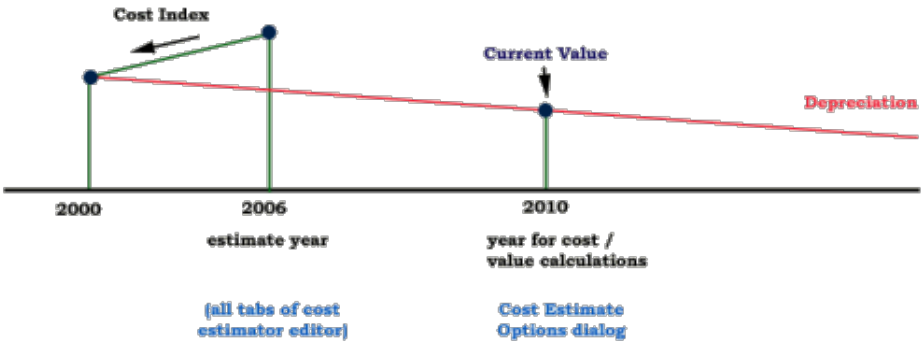


Example of diagram showing how the cost estimator calculates rehabilitation costs

Depreciation costs

Depreciation costs as such are not calculated by the cost estimator. However, it is possible to estimate the depreciation cost of an asset as the cost estimator calculates the asset current value (depreciation cost = installation cost - current value). Depreciation rule is considered as linear in InfoAsset Manager.

Show me



Example of diagram showing how the cost estimator calculates depreciation costs (asset current value)

Data Fields Updated by the Cost Estimator

The following sections detail which cost parameters can be calculated when using a cost estimator and inputting data.

Calculations are carried out for nodes and pipes in Collection Networks or pipes in Distribution Networks. Calculations are only carried out for fields that do not already have values.

Installation cost

To calculate pipe **Installation cost**, the **Asset Installation Cost** option must be selected in the cost estimator.

$$\frac{CI_{installation\,year}}{CI_{estimate\,year}} \; x \; Pipe\,length \; x \; Cost\,per\,unit\,length \; x \; Pipe\,depth\,factor$$

Where:

$CI_{installation\ year}$ = Cost Index for **Date installed** year

$CI_{estimate\ year}$ = Cost Index for Estimate Year specified in cost estimator

Pipe length = value in **Pipe length** data field (Collection Networks) or **Length** field (Distribution Networks)

Cost per unit length is determined from lookup table in Pipes page of cost estimator and values in the following data fields. (Default values will be provided by the cost estimator for material and site condition/surface type if data not available for a pipe.)

Collection Networks: **US pipe material**, **US width** and **Site condition**

Distribution Networks: **Internal diameter**, **Material** and **Surface type**

Pipe depth factor is determined from pipe depth factor lookup table in Cost Index page of cost estimator and the following data fields. (A depth value of zero is given an implicit cost factor of 1.0. Cost factors are linearly interpolated between depth values.)

Collection Networks: average of **US depth from cover** and **DS depth from cover**

Distribution Networks: **Depth of cover**

To calculate node **Installation cost** (Collection Networks), the **Asset Installation Cost** option must be selected in the cost estimator.

$$\frac{CI_{installation\ year}}{CI_{estimate\ year}}\ x\ Node\ cost$$

Where:

$CI_{installation\ year}$ = Cost Index for **Date installed** year

$CI_{estimate\ year}$ = Cost Index for Estimate Year specified in cost estimator

Node cost is determined from lookup table in Nodes page of cost estimator and node **Type** field. (A default value will be provided by the cost estimator for node type if data not available for node.)

Expected lifetime

Pipe **Expected lifetime** is determined from lookup table in Pipes page of cost estimator and values in the following data fields:

- Collection Networks: **US pipe material** and **Site condition** data fields.
- Distribution Networks: **Material** and **Surface type**

Default values will be provided by the cost estimator for material and site condition/surface type if data not available for a pipe.

Node **Expected lifetime** (Collection Networks) is determined from lookup table in Nodes page of cost estimator and value in the node Type data field. A default value will be provided by the cost estimator for node type if data not available for node.

Current value

To calculate pipe **Current value**, the **Asset Installation Cost** option must be selected in the cost estimator.

$$\left(1-\frac{Age\ of\ pipe}{Expected\ lifetime}\right)\ x\ Installation\ cost$$

Where:

Age of pipe = Calculation year - **Date installed** year

Expected lifetime = value in **Expected lifetime** data field (or expected lifetime calculated by cost estimator as above if pipe does not have an existing value)

Installation cost = Installation cost calculated by cost estimator as detailed above

Node **Current value** is calculated in a similar way for Collection Networks.

$$\left(1-\frac{Age\ of\ node}{Expected\ lifetime}\right)\ x\ Installation\ cost$$

Rehabilitation cost

To calculate pipe **Rehabilitation cost**, the **Annual Rehabilitation Cost** option must be selected in the cost estimator.

$$\frac{CI_{calculation\ year}}{CI_{estimate\ year}}\ x\ Pipe\ length\ x\ Cost\ per\ unit\ length\ x\ Pipe\ depth\ factor$$

Where:

$CI_{calculation\ year}$ = Cost Index for cost calculation year

$CI_{estimate\ year}$ = for Estimate Year specified in cost estimator

Pipe length, **Cost per unit length** and **Pipe depth factor** determined as for Installation cost as detailed above

To calculate node **Rehabilitation cost** (Collection Networks), the **Annual Rehabilitation Cost** option must be selected in the cost estimator.

$$\frac{CI_{calculation\,year}}{CI_{estimate\,year}}\ x\ Node\ cost$$

Where:

$CI_{calculation\ year}$ = Cost Index for cost calculation year

$CI_{estimate\ year}$ = for Estimate Year specified in cost estimator

Node cost is determined from lookup table in Nodes page of cost estimator and node **Type** field. (A default value will be provided by the cost estimator for node type if data not available for node.)