



## Affordability and Costing of SuDS

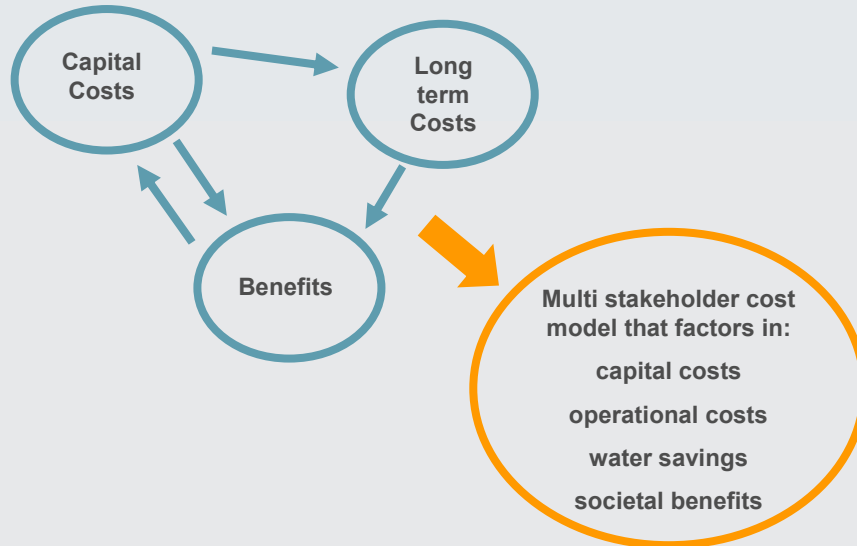
Bridget Woods Ballard

### Who is interested in costs?

- > The developer – where forced to consider SuDS, but only interested in capital
- > Whoever is ‘paying’ for long-term maintenance (not the developer)

### Who is interested in benefits?

- > Society / local communities / our environment
- > Anyone ‘paying’ for downstream infrastructure or environmental damage



### The Principle

'If full compliance with the Standards would necessitate the construction of a drainage system that is more expensive than an equivalent conventional design then full compliance is not required, and instead the drainage system must comply with the standards to the greatest extent possible without exceeding the cost of the equivalent conventional design'

- > What are the costs of SuDS?
- > What methods and tools are available to help?
- > How to keep costs down?
- > Things to consider when comparing SuDS with more conventional alternatives



- > **Accounting for capital and long term costs** provides a consistent way of comparing the cost of site drainage options
- > A **'Whole Life' maintenance cost estimate** allows the SAB to understand their likely long term maintenance liability
- > A **costed monitoring and maintenance plan** provides a framework for effective asset management and risk/cost control

## Construction costs

- > Erosion and sediment control
- > Materials
- > Labour and equipment
- > Planting and landscaping
- > System rehabilitation prior to commissioning
- > Maintenance during the Defects Liability Period
- > Inspection and handover inspections
- > Land take

**Developer Costs**

## Regular maintenance

- > Inspection and monitoring
- > Clearing inlets and outlets
- > Collecting litter
- > Grass-cutting, weeding, pruning
- > Control of aquatic vegetation
- > (Brushing of permeable surfaces)
- > Emptying gullies, silt traps

**Frequencies can vary – depending on amenity and performance needs**

**Maintenance schedules and specifications should be reviewed and adapted where required**

**Annual costs should be monitored to inform planning and to ensure sufficiency of long-term capital resources**

## Periodic/irregular maintenance

- > Minor repairs  
(erosion/structural damage)
- > Sediment extraction and removal
- > Limited re-planting
- > Allowance for response/repairs following pollution or flood events

**Medium frequency**  
**Estimated allowance.**  
**Good design & construction should reduce liabilities**  
**Actions triggered by inspection outcomes**  
**Monitor requirements to inform guidance & costs**

## Rehabilitation work

- > Geotextile replacement
- > Infiltration surface rehabilitation
- > Extensive re-planting
- > Replacement of structural components
- > Major sediment removal activity

**Low frequency**  
**Estimated allowance.**  
**Good design & construction should reduce liabilities**  
**Actions triggered by inspection outcomes**  
**Monitor requirements to inform future guidance and costs**

## Whole Life Costing: method

- > To estimate the sum of money that would be needed today to meet all future scheme costs
- > To calculate the present value of all future costs:

$$PV = \sum_{t=0}^{t=N} \frac{C_t}{\left(1 + \frac{r}{100}\right)^t}$$

Where:

N = Time horizon in years

C<sub>t</sub> = Total monetary costs in year t

r = Discount rate

## Costing tools

- > Until recently... high uncertainty, no drivers
- > Now – 2 costing tools available

> HR Wallingford

[www.uksuds.com](http://www.uksuds.com)

Multiple components – hard & soft

Simple capital

O&M –options

Affordability / comparison tool

> SuDS4Roads project

<http://scotsnet.org.uk/best-practice.php>

Allows detailed capital costing

Fixed O&M activities

## Keeping costs down ?

Consider the 'management and use' of surface water and its 'integration with development style and space'

**EARLY** and **WITH ALL STAKEHOLDERS**



## Keeping costs down ?

Use open space for 2 or more purposes, e.g.

- **Amenity** + regular & exceedance drainage
- **Car parking** + regular & exceedance drainage
- **Recreation** + exceedance storage zones
- **Traffic management facilities** + regular drainage
- **Roads** + exceedance flow routes

## Keeping costs down ?

- > Design to fully treat up to 1 year return period events
- > Maximise use of simple, surface, vegetated systems
- > Minimise deep excavation and engineered structures

## Keeping costs down ?

- > Develop a **cost-effective construction process / programme** to protect drainage
- > Design for **low ongoing maintenance**, integrated with general landscaping work
- > Include **green waste and sediment disposal zones** on-site
- > Ensure **effective community engagement**



## Comparing like for like ?

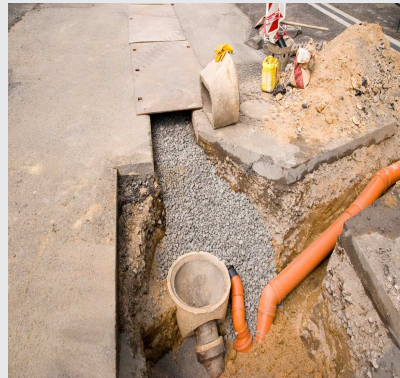
Equivalent costs for:

- Storage
- Conveyance costs
- Treatment - ?
- Exceedance flow management
- Operation & maintenance costs



## Comparing like for like ?

- Absence/reduction in need for kerbs, gullies, pipes, manholes
- Absence/reduction in deep trench and storage excavations
- Reduction in easements for storm drain outfalls
- Simpler construction methods



## Quite often – the lower cost option

	SuDS cost (per unit)	Traditional Drainage cost (Per unit)
Marlborough Road, Telford	£966,119	£1,074,528
Matchborough School, Redditch, Worcestershire	£93,015	£116,700
Redhill School, Worcester	£51,900	£173,700
Daniel's Cross, Newport	£780,836	£889,052
Caledonian Road, Islington	£22,700	£75,100
Railfreight Terminal, Telford	£51,088	£372,259



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