

STREET TREES

MANAGING CONFLICT AND EXPECTATIONS

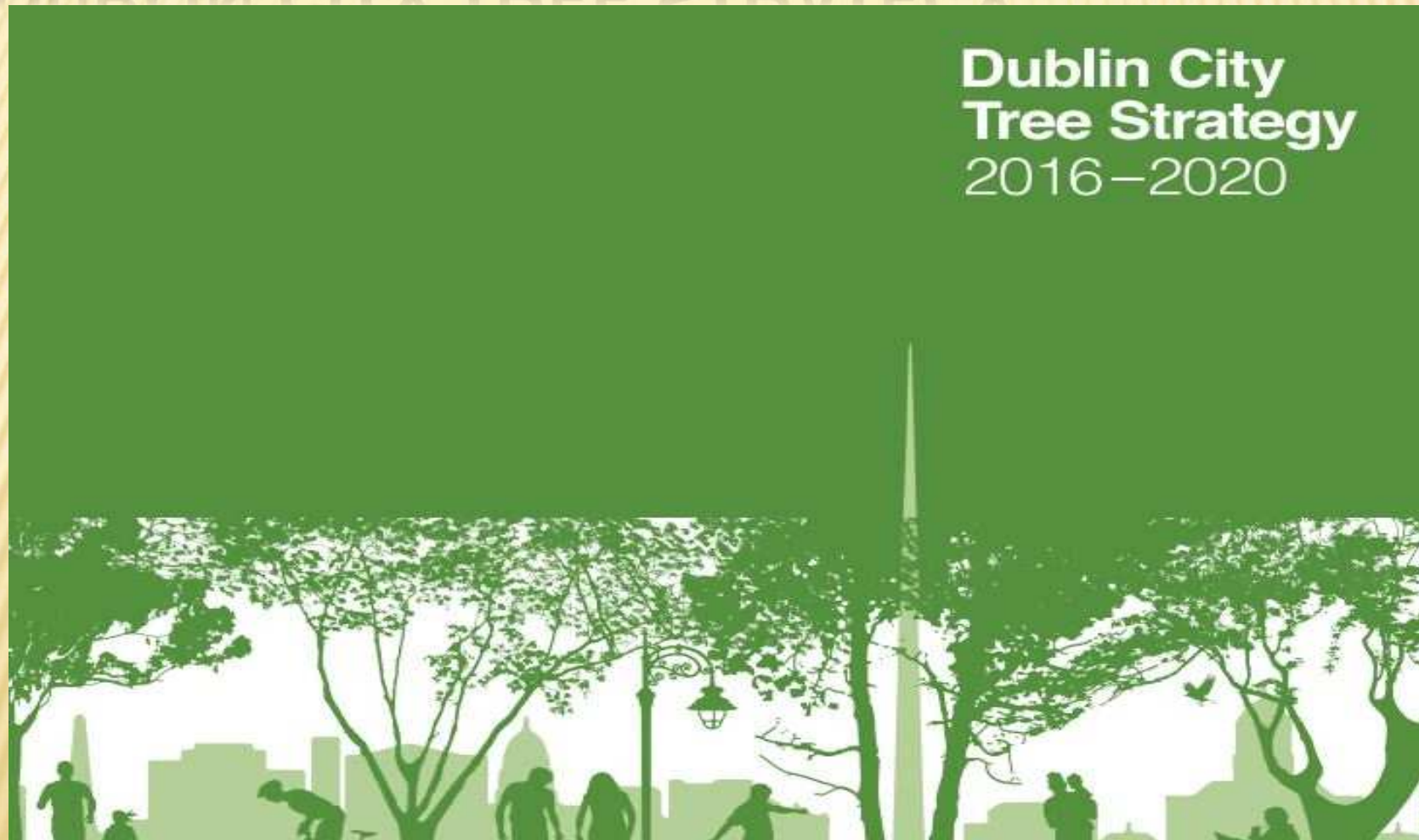
Presentation to North Central Area Committee

19th April 2021

Fergus O'Carroll

Senior Executive Parks Superintendent

DUBLIN CITY TREE STRATEGY



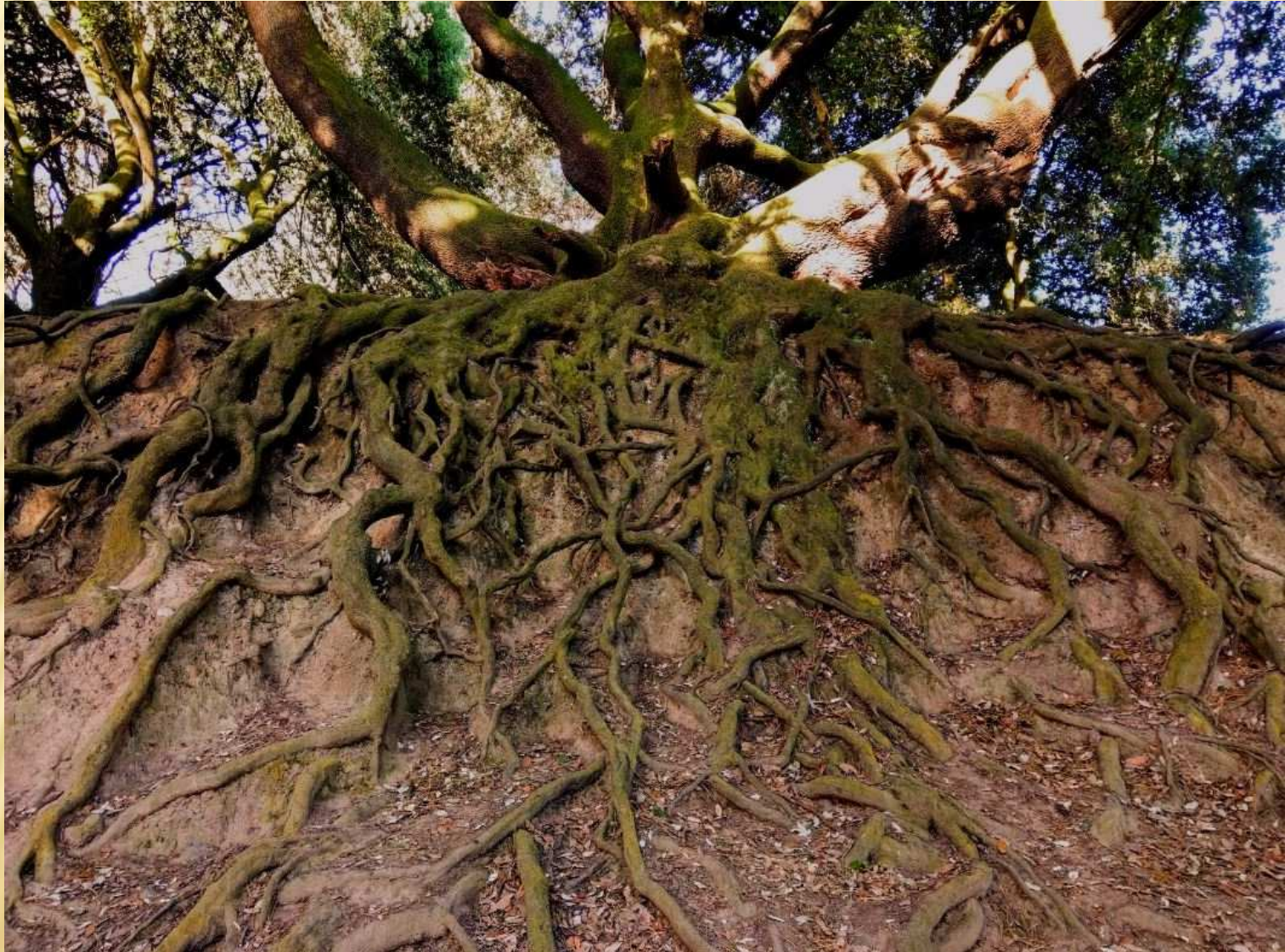
Available in print again and as a download

<http://www.dublincity.ie/main-menu-services-culture-and-amenities-dublin-city-parks-trees-city/dublin-city-tree-strategy>

CONFLICTS

- ✘ Just over 50% of all Work Requests received by Parks refer to Street Trees – 2 main areas of complaint:
- ✘ Damage to walls and footpaths from root growth.
- ✘ Shade, leaves, berries, honeydew etc. due to crown size

ROOTS



Roots

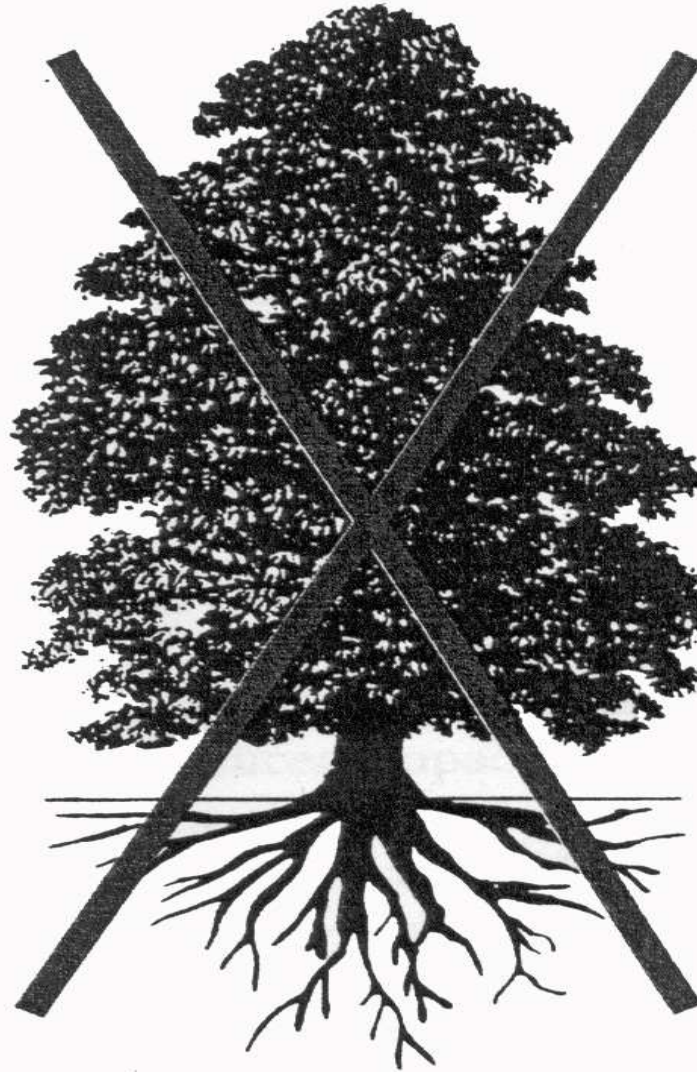


Figure 1.
Incorrect representation
of a tree's root system.



More accurate depiction of root growth – 90% of roots in top 60cm

Tree Roots

Anchorage - root plate, +/- drip line, > 10mm

Feeding roots - extend 2-3 x height of tree

Need min. 600mm soil (BS 4428:1989)

1 cubic m soil / square metre of crown

Staking only needed for 1-2 years

Garden walls 300mm foundation - no obstacle

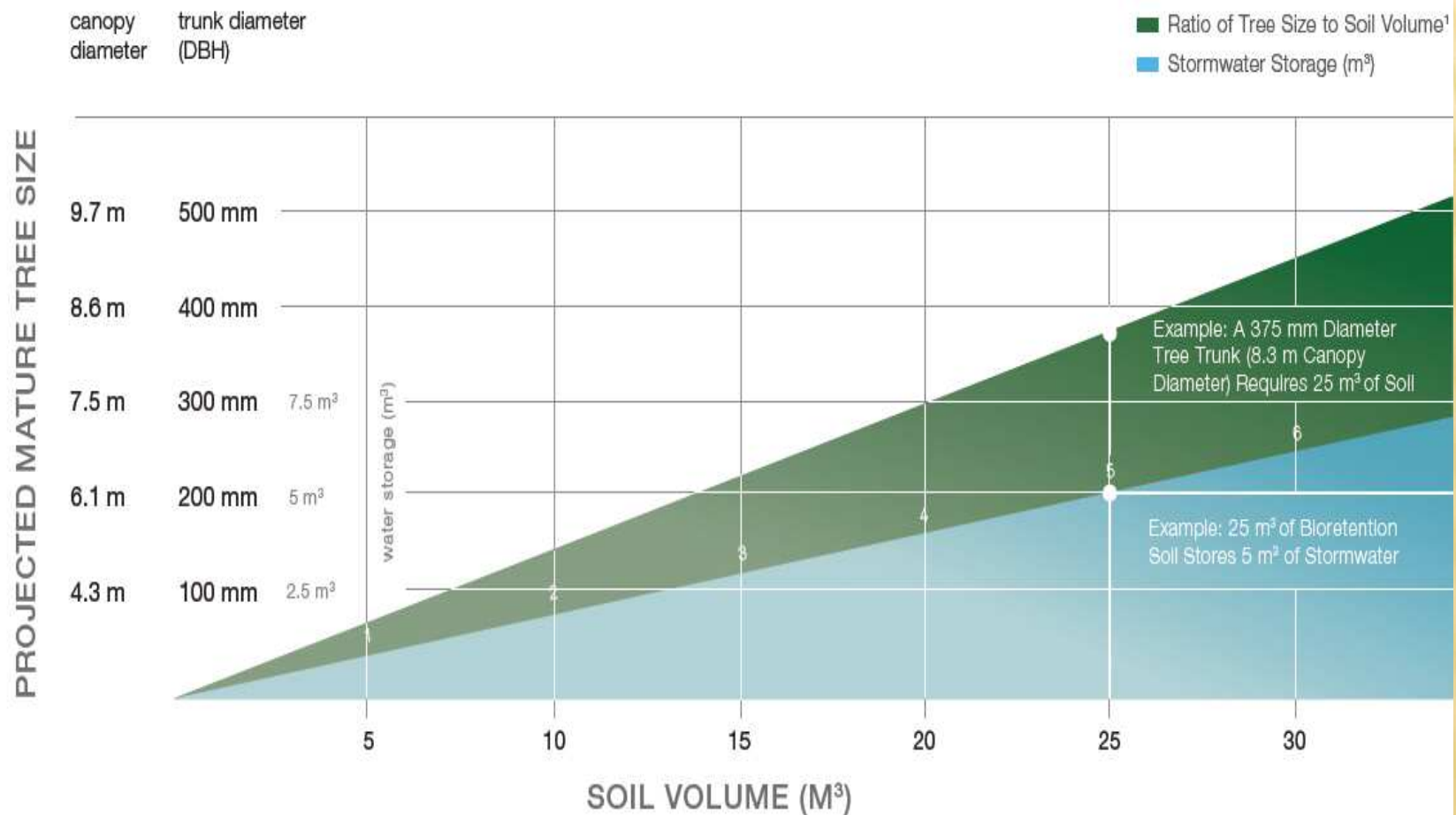
Road carriageways too compact for root growth

Verges > 8 foot wide have few problems

Damaged roots rapidly add callus material

Wide verges with adequate rooting space lead to few conflicts – Griffith Avenue

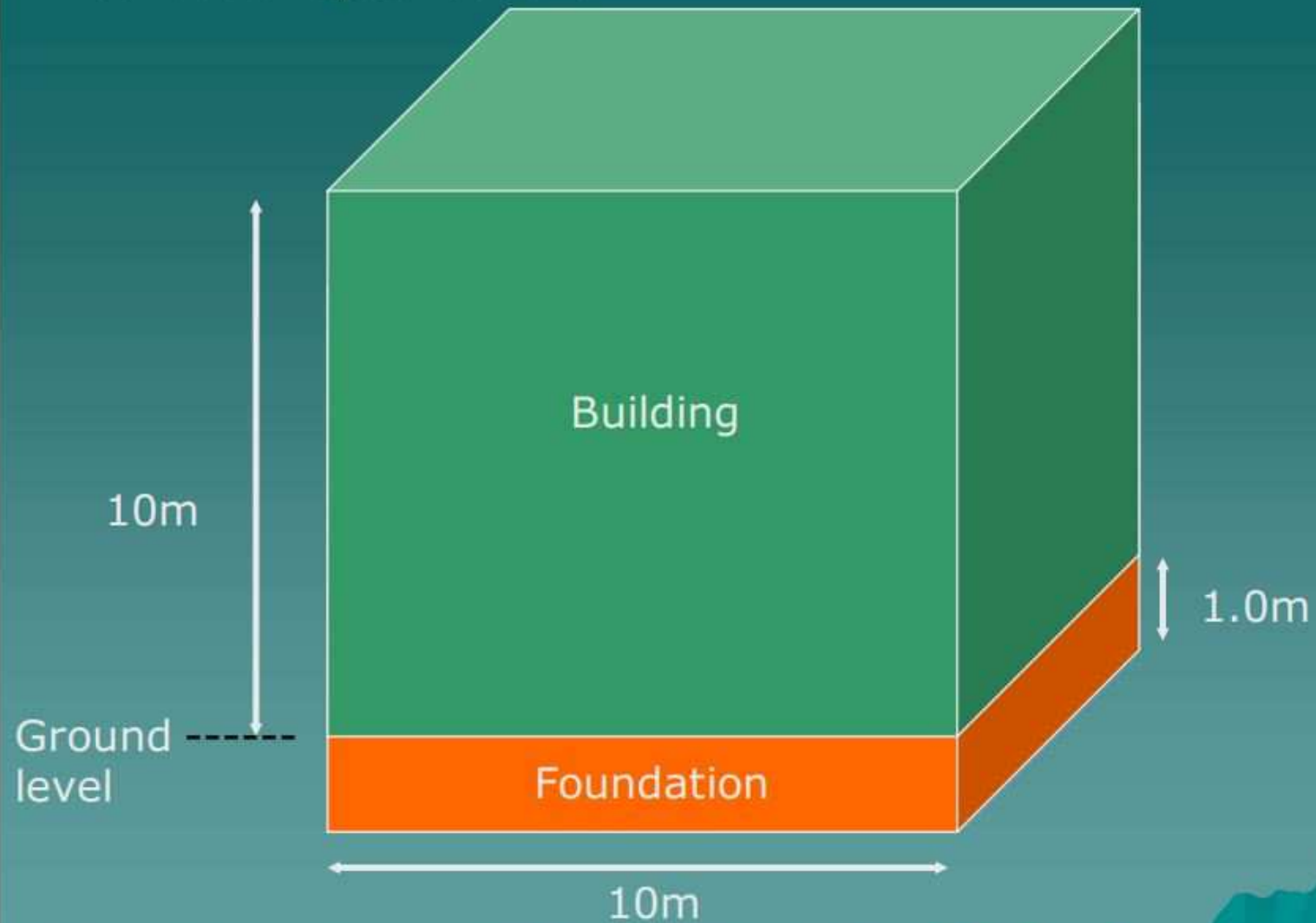
HOW MUCH SOIL TO GROW A BIG TREE?



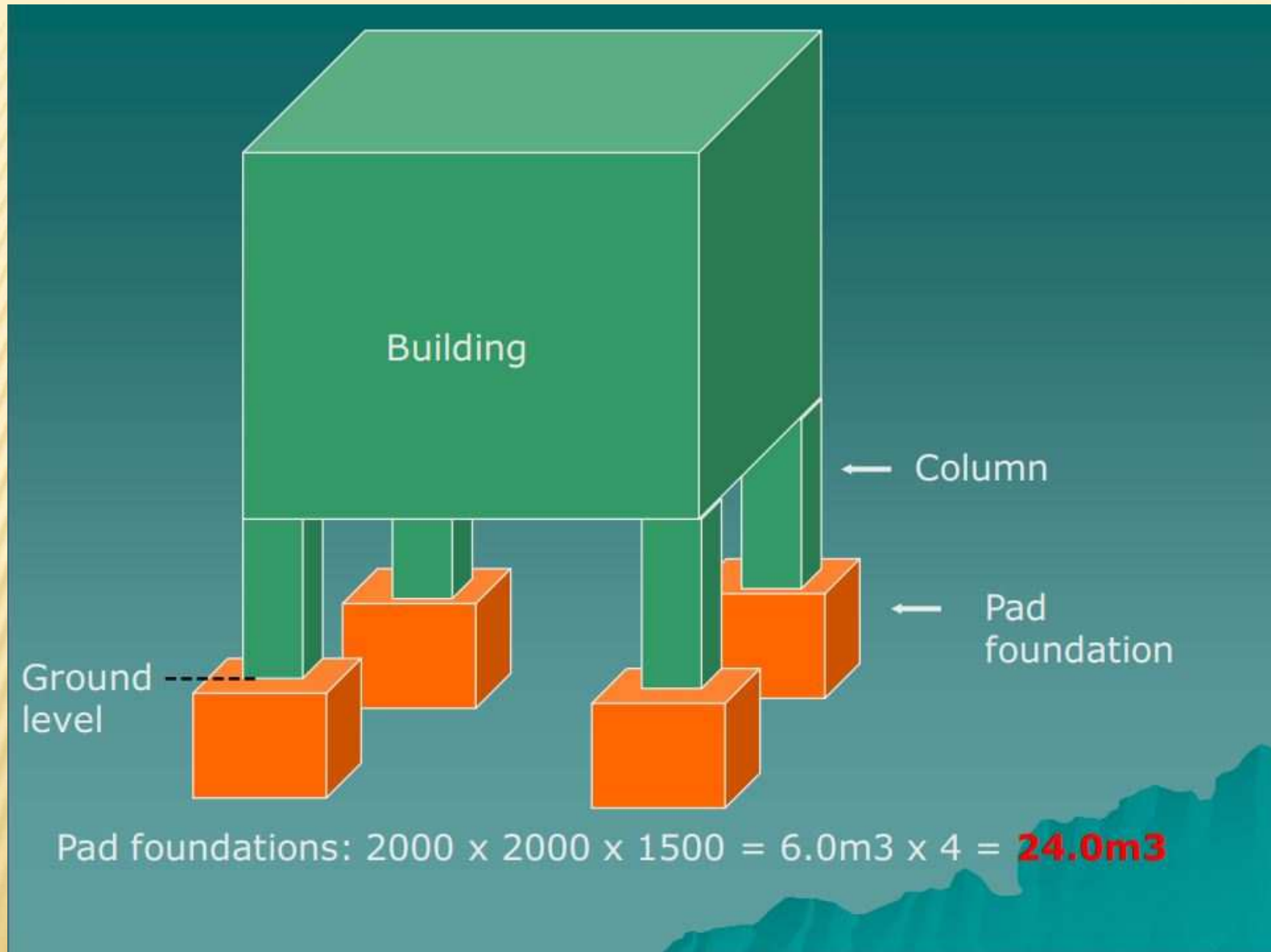
RATIO OF TREE SIZE TO SOIL VOLUME

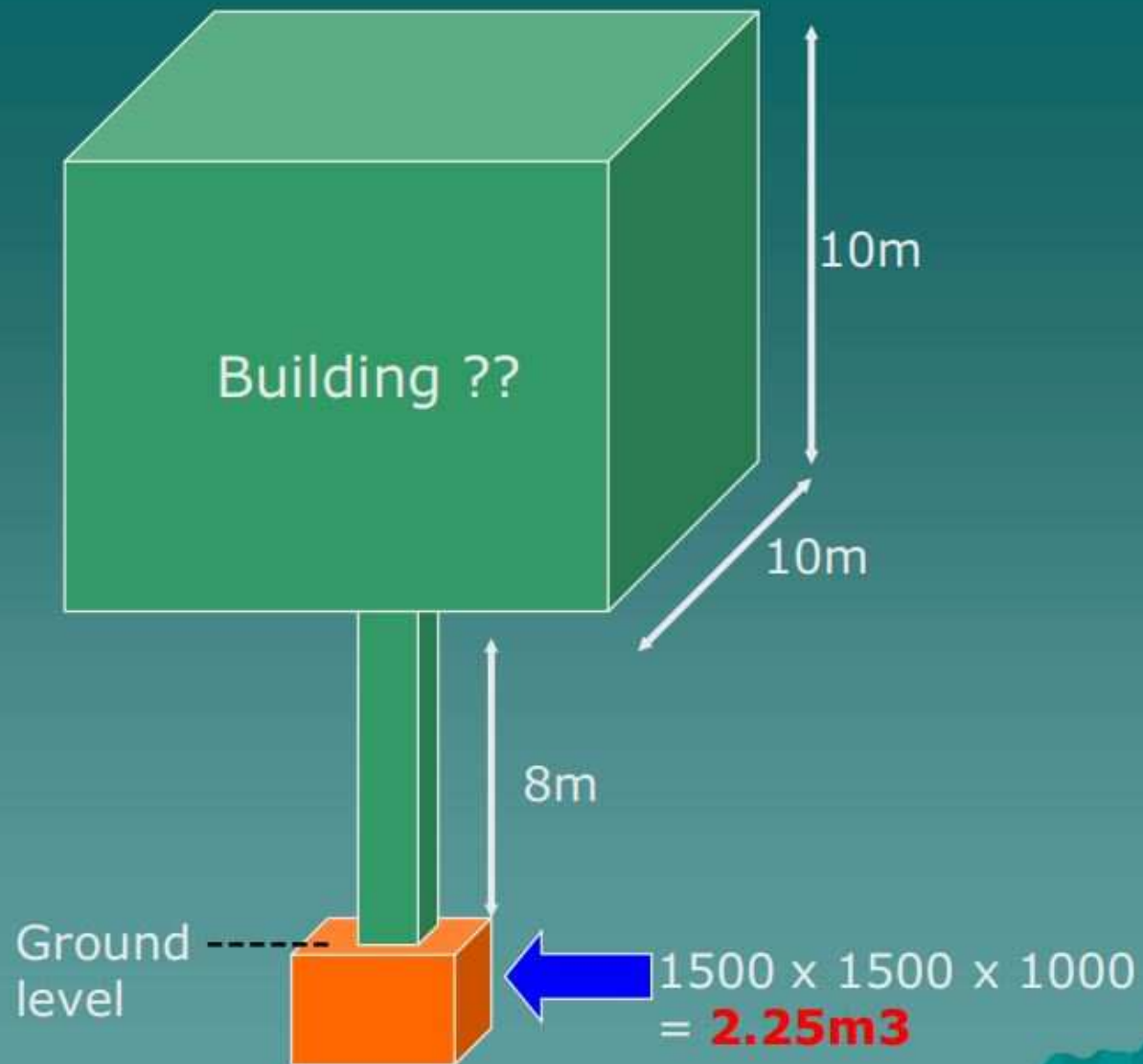
A tree with 7.5m crown diameter (small to medium) requires 20 cubic meters of soil to allow for healthy growth (and can store 4 cubic meters of water)

Foundation specifications



Trench foundation: $4800 \times 1000 \times 450 = \mathbf{21.6 \text{ m}^3}$





No Engineer would expect a building like this to stand



20 cubic meters of rooting space would require something like this



Unfortunately 1 – 2 cubic meters is more typical



Or often none at all







Roots have to go somewhere





Inadequate rooting can lead to unstable trees





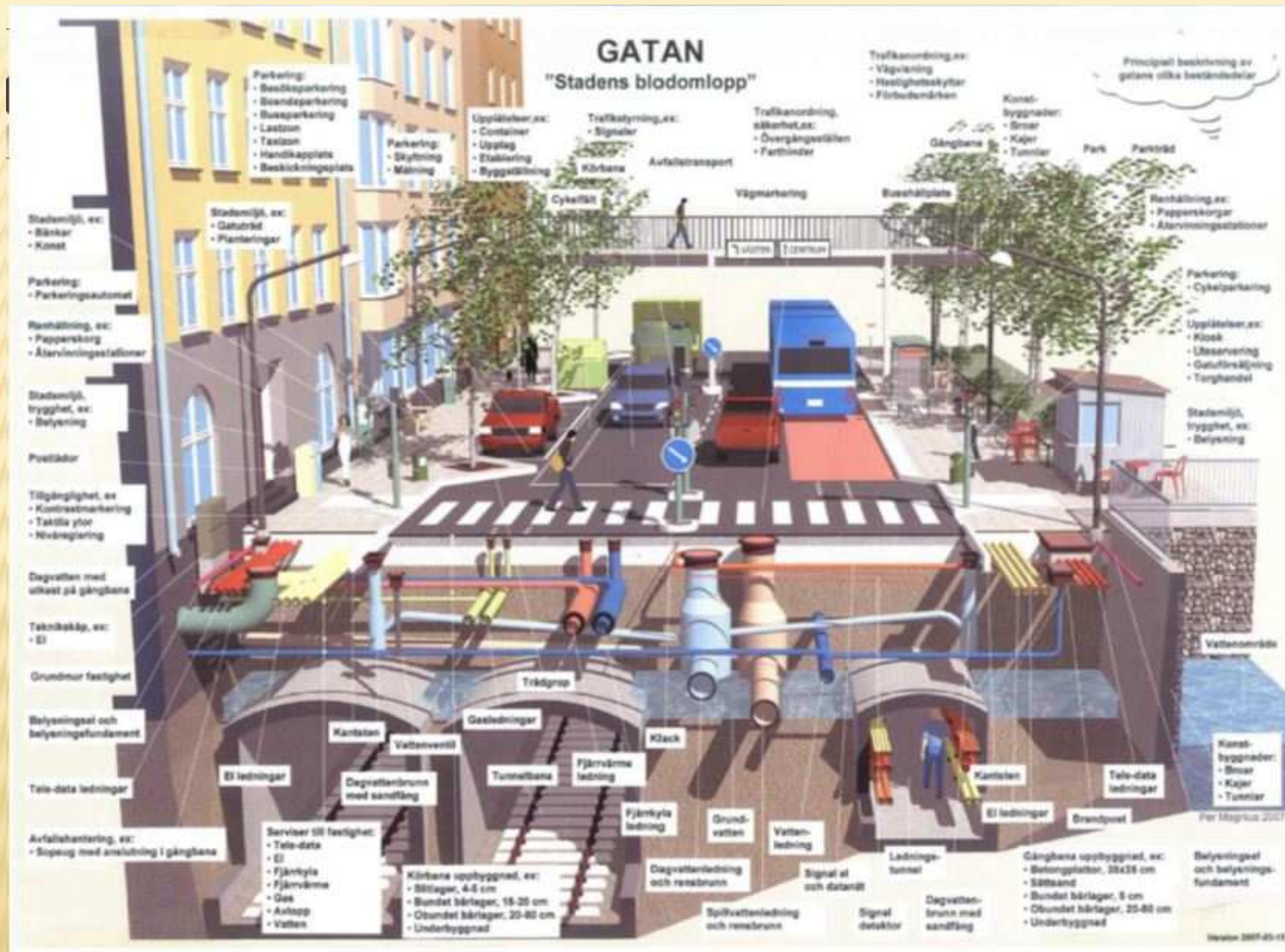
Vulnerable to windthrow



Urban trees cannot thrive without adequate provision for root growth



Where trees have access to additional rooting they soon out perform their neighbours; same varieties, planted at the same time.



There is considerable competition for space beneath our streets



The provision of adequate rooting as part of renewal schemes avoids future infrastructure conflicts while allowing for significant volumes of storm water retention.



Vents and grills allow for water infiltration and gaseous exchange; roots need to breathe



Roots quickly colonise the soil between the load bearing stones



Scheme in Copenhagen.
Entire area was converted to
a constructed tree pit creating an
attractive public space and
taking all of the roof water from
the surrounding buildings

Granit size 90-150mm



Concrete box to hold the paved surface in place



Compacting before soil is washed in to the voids



The stone shall fall into the box to get a stable construction





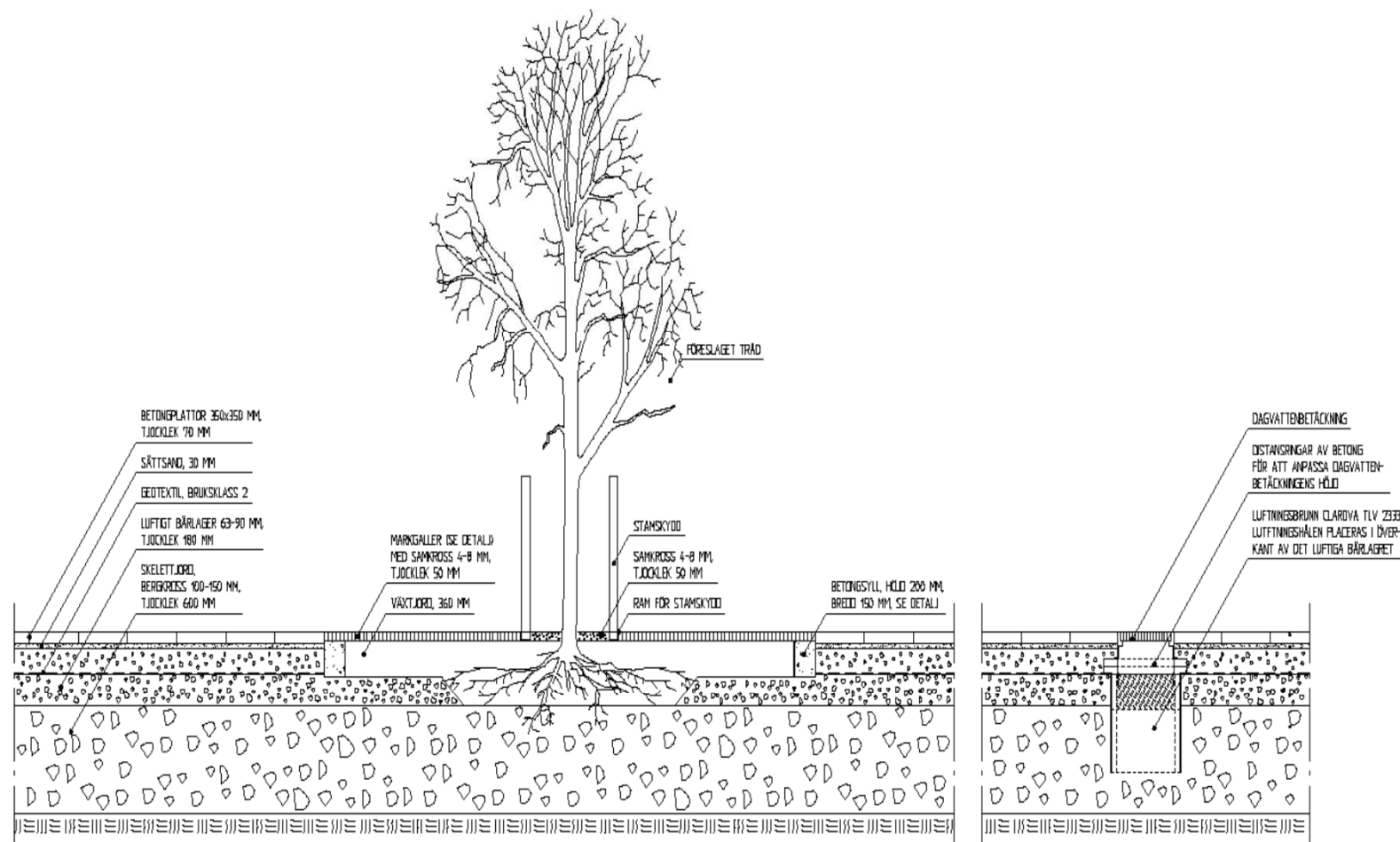
Root deflectors guide roots down into growing medium and away from conflict with surface paving treatment

2 years after planting





A number of load-bearing 'crate' systems are available commercially to provide rooting capacity beneath paving.



TRÄDGRÖP I HÅRDGJORD YTA MED MARKGALLER,
STAMSKYDD SAMT LUFTNINGBRUNN
PRINCIPSEKTION
SKALA 1:20

TYRENS LANDSKAPSARKITEKTER
STOCKHOLM 2005-06-02

NEXT STEPS

- ✘ Adopted Tree Strategy commits us to the principle of 'Right Tree – Right Place'
- ✘ And replanting 1 tree for each that is removed
- ✘ Huge legacy of the opposite.
- ✘ Best approach is an area by area 'Agreed Multi-Annual Phased Replacement Programme'
- ✘ Example Marino

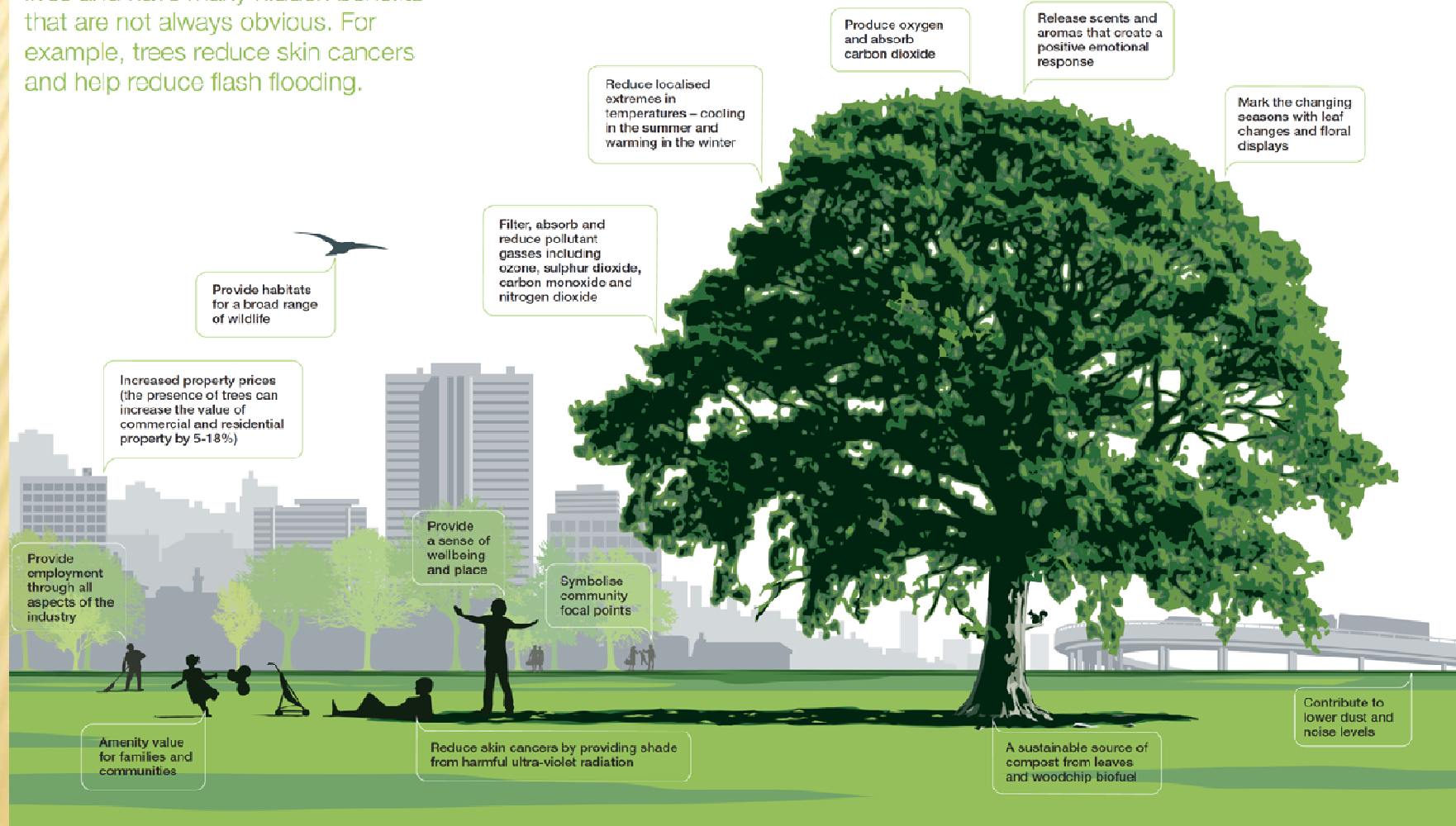
NEXT STEPS (ONGOING)

- ✘ Recruit replacement Tree Officer to drive the implementation of the adopted Tree Strategy
- ✘ Recruit/Procure expertise to survey all of the trees and upload onto Database
- ✘ Creation of dedicated tree crew that will work on trees 12 months of the year
- ✘ Move from reactive to proactive management of Urban Forest

WHY WE PLANT TREES – QUICK REMINDER

Why trees are good for us

Trees are an important part of our lives and have many hidden benefits that are not always obvious. For example, trees reduce skin cancers and help reduce flash flooding.



BENEFITS



A lot of work taking place internationally to place an economic value on the benefits of trees











Research by the Arboricultural Association found that while the public prefer smaller flowering trees, tree professionals tend to like large canopy (proper) trees better.



Early morning St. Anne's Park



Gnarled Beech – St. Anne's Park