$$A_T = A_R + A_S$$

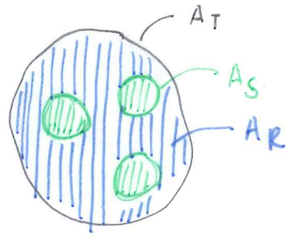
open space

GFA of res + 15%

A_T = total ~~area~~ ~~res split of 10, 4, k~~

A_R = residential opp.

A_S = service space



$$(A_T - A_S)\,k = A_S$$

where $k = \frac{\text{dwellings}}{m^2} \times \frac{\text{people}}{\text{dwelling}} \times \frac{\text{service area}}{\text{person}}$

res area or everything?

$$(A_T - A_S) = \frac{A_S}{k}$$

$$-A_S = \left(\frac{A_S}{k}\right) - A_T \quad \text{rearrange.}$$

$$-A_S = \frac{A_S}{k} - \frac{A_T k}{k} \quad \text{multiply } A_T \text{ by } \frac{k}{k} \text{ (1)}$$

$$-A_S k = A_S - A_T k \quad \text{multiply everything by } k$$

$$A_T k = A_S + A_S k \quad \text{rearrange}$$

$$A_T = \frac{A_S}{k} + A_S \quad \text{divide everything by } k$$

* factorise to get 1 A_S

$$A_T = A_S\left(\frac{1}{k} + 1\right)$$

$$A_S = \frac{A_T}{\left(\frac{1}{k} + 1\right)}$$

~~$A_T - A_S = A_R$~~

~~$A_R \times 15\% = \text{open space}$~~

~~$A_R - O_S = A_R$ final~~

$\frac{A_R}{A_T}$ = Res %.

$(A_T - A_R = A_S)$

$\frac{A_S}{A_T}$ = Service % = reduction factor

GFA × Reduction % ÷ 80

= Dwelling count.

Population = Dwelling count × people/dwelling (p)