

Community Infrastructure Levy (CIL): significant problems and proposed alternative formulae

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Introduction:

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About this document:

This document highlights some of the **significant flaws** in the **formulae for CIL**.

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Relevant qualifications of the author of this report:

I have a maths degree from Oxford University, and I have been a local authority planning officer for six years.

Executive Summary:

The current formulae for CIL that are due to be introduced in April 2012 contain **very significant flaws** and in my opinion are **not** fit-for-purpose. These formulae do not fully align with the aims of the legislation, and will result in a number of unintentional side effects. These formulae are also unnecessarily complicated, which will waste a significant amount of money around the country due to an increase in staff time, training, errors, disputes, appeals, etc. These problems could be resolved relatively easily, as per the solutions in this report. However it remains to be seen whether DCLG will address these issues or will instead proceed to issue the formulae in their current form.

Introduction:

The main two formulae for CIL are as follows:

Firstly, the amount of CIL chargeable at a given relevant rate (R) must be calculated by applying the following formula:

$$\frac{R \times A \times I_p}{I_c}$$

(Note: In the above formula, it would be more accurate to write "A" as "A_R")

Secondly, in the above formula the key term "A" (the deemed net area chargeable at rate R) is then defined as follows:

$$A = \frac{C_R \times (C - E)}{C}$$

For the purposes of the illustrations in this report, the following rates will be used:

Residential = £60 per square metre.
Retail = £25 per square metre.
Office = £10 per square metre.

Also, for the purposes of this report it will be taken that $I_p = I_c$ (e.g. the first year of CIL), which means that $I_p / I_c = 1$.

Significant problem #1:

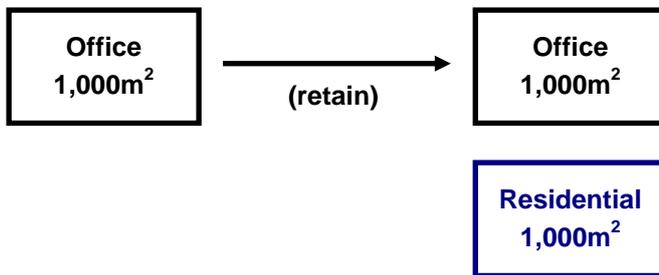
Introduction:

The current formulae for CIL that are due to be introduced in April 2012 contain a significant discrepancy between the treatment of “retained” areas versus the treatment of “demolished and replaced” areas. This discrepancy will potentially provide a financial incentive for applicants to demolish and replace buildings, rather than to retain buildings, even if they would not otherwise have chosen to do so.

Illustration of this problem:

Consider the following example of a site that contains an existing “Office” building with area 1,000m². The applicant wants to result in a site with an “Office” building with area 1,000m² and a “Residential” building with area 1,000m². They have the choice to either retain the “Office” building in its exact same form (“Option 1”), or to demolish and replace the “Office” building with a new (and identical) “Office” building (“Option 2”).

Option 1 (retention):



For Option 1 (retention), the CIL calculations would be as follows:

$$A_{OFFICE} = \frac{C_{OFFICE} \times (C - E)}{C} = \frac{0 \times (2000 - 0)}{2000} = 0m^2$$

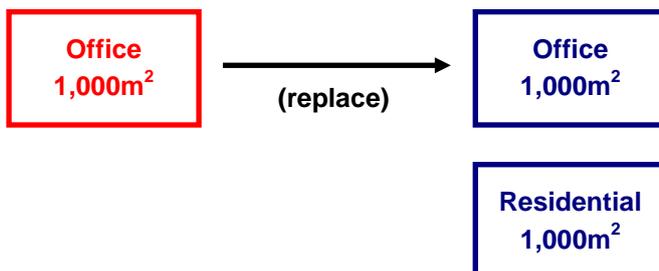
$$A_{RESIDENTIAL} = \frac{C_{RESIDENTIAL} \times (C - E)}{C} = \frac{1000 \times (2000 - 0)}{2000} = 1000m^2$$

$$CIL_{OFFICE} = \frac{R \times A \times I_P}{I_C} = 10 \times 0 = \text{£}0$$

$$CIL_{RESIDENTIAL} = \frac{R \times A \times I_P}{I_C} = 60 \times 1000 = \text{£}60000$$

$$CIL_{TOTAL} = \text{£}60000$$

Option 2 (demolition and replacement):



For Option 2 (demolition and replacement), the CIL calculations would be as follows:

$$A_{OFFICE} = \frac{C_{OFFICE} \times (C - E)}{C} = \frac{1000 \times (2000 - 1000)}{2000} = 500m^2$$

$$A_{RESIDENTIAL} = \frac{C_{RESIDENTIAL} \times (C - E)}{C} = \frac{1000 \times (2000 - 1000)}{2000} = 500m^2$$

$$CIL_{OFFICE} = \frac{R \times A \times I_P}{I_C} = 10 \times 500 = \text{£}5000$$

$$CIL_{RESIDENTIAL} = \frac{R \times A \times I_P}{I_C} = 60 \times 500 = \text{£}30000$$

$$CIL_{TOTAL} = \text{£}35000$$

Summary:

As can be seen by comparing the two different " CIL_{TOTAL} " figures above, even though the existing and resulting sites are identical for both options, the CIL payment for Option 1 (retention) will be **almost twice** as much as the CIL payment for Option 2 (demolition and replacement).

The fundamental problem is the significant discrepancy in the formulae between the treatment of retained areas versus the treatment of demolished and replaced areas. In Option 1 (retention), the formulae take the 1,000m² of existing "Office" and use it to "cancel" out the 1,000m² of resulting "Office", whilst charging CIL for the full 1,000m² of resulting "Residential". However, in Option 2 (demolition and replacement), the formulae take the 1,000m² of existing "Office" and use it to "cancel" out 500m² of the resulting "Office" and 500m² of the resulting "Residential". This means that in Option 2 (demolition and replacement), even though the applicant is primarily adding 1,000m² of "Residential" to the site, he pays CIL for 500m² of "Office" and 500m² of "Residential", which is significantly less than paying CIL for the full 1,000m² of resulting "Residential".

Solution:

The above problem would be resolved by the alternative formulae that I've proposed at the end of this report. For both of the above options, these alternative formulae would charge CIL for the full 1,000m² of resulting "Residential" without charging CIL for any of the resulting "Office".

Significant problem #2:

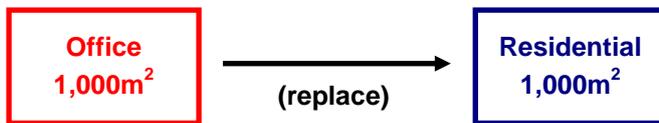
Introduction:

The current formulae for CIL that are due to be introduced in April 2012 contain a significant discrepancy between the treatment of recently used sites versus the treatment of recently unused sites. This discrepancy will potentially provide a financial incentive for applicants to choose to redevelop recently used sites, rather than recently unused sites, even though the latter often have a greater need for redevelopment.

Illustration of this problem:

Consider the following example of two sites, each of which contains an existing "Office" building with area 1,000m². "Site 1" has been actively used for a continuous period of 6 months within the last 12 months, whereas "Site 2" has not been actively used as such during the last 12 months. The applicant wants to choose one of these two sites, for which he will demolish the "Office" building and erect a new "Residential" building with area 1,000m².

Site 1 (recently used):



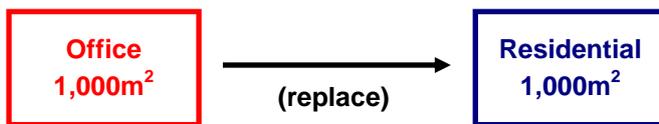
For Site 1 (recently used), the CIL calculations would be as follows:

$$A_{RESIDENTIAL} = \frac{C_{RESIDENTIAL} \times (C - E)}{C} = \frac{1000 \times (1000 - 1000)}{1000} = 0m^2$$

$$CIL_{RESIDENTIAL} = \frac{R \times A \times I_P}{I_C} = 60 \times 0 = \text{£}0$$

$$CIL_{TOTAL} = \text{£}0$$

Site 2 (recently unused):



For Site 2 (recently unused), the CIL calculations would be as follows:

$$A_{RESIDENTIAL} = \frac{C_{RESIDENTIAL} \times (C - E)}{C} = \frac{1000 \times (1000 - 0)}{1000} = 1000m^2$$

$$CIL_{RESIDENTIAL} = \frac{R \times A \times I_P}{I_C} = 60 \times 1000 = \text{£}60000$$

$$CIL_{TOTAL} = \text{£}60000$$

Summary:

As can be seen by comparing the two different "CIL_{TOTAL}" figures above, Site 1 (recently used) would **not** be subject to any CIL payment whilst Site 2 (recently unused) site would be subject to a **full** CIL payment.

The fundamental problem is the significant discrepancy in the formulae between the treatment of recently used sites versus the treatment of recently unused sites. For Site 1 (recently used), the formulae take the 1,000m² of existing "Office" and use it to "cancel" out the 1,000m² of resulting "Residential". However, for Site 2 (recently unused), the formulae ignore the 1,000m² of existing "Office", whilst charging CIL for the full 1,000m² of resulting "Residential". This discrepancy will potentially provide a financial incentive for applicants to choose to redevelop recently used sites, rather than recently unused sites, even though the latter often have a greater need for redevelopment.

Solution:

The definitions of " C_R " and " E " need to be re-considered with respect to the exclusion of sites that have not been used for a continuous period of 6 months within the last 12 months, to avoid discouraging the redevelopment of recently unused sites.

Significant problem #3:

Introduction:

The current formulae for CIL that are due to be introduced in April 2012 would allow a change of use from a lower rate use to a higher rate use without any CIL being payable. This would seem counter-intuitive to the reason why some types of use have a lower CIL rate whilst other types of use have a higher CIL rate. It would also mean that the total amount of CIL paid by a site with a higher rate use would depend on whether the site went directly to that higher rate use or went via another lower rate use.

Illustration of this problem:

Consider the following example of two sites, each of which starts as an empty site, and each of which ends up as a "Residential" building with area 1,000m². "Site 1" went directly from an empty site to a "Residential" building, whereas "Site 2" went (possibly over a number of years) via an "Office" building to a "Residential" building.

Site 1 (directly to residential):



For Site 1 (directly to residential), the CIL calculations would be as follows:

$$A_{RESIDENTIAL} = \frac{C_{RESIDENTIAL} \times (C - E)}{C} = \frac{1000 \times (1000 - 0)}{1000} = 1000m^2$$

$$CIL_{RESIDENTIAL} = \frac{R \times A \times I_P}{I_C} = 60 \times 1000 = \text{£}60000$$

$$CIL_{TOTAL} = \text{£}60000$$

Site 2 (residential via office):



For Site 2 (residential via office), the CIL calculations for stage 1 (i.e. empty site to office) would be as follows:

$$A_{OFFICE} = \frac{C_{OFFICE} \times (C - E)}{C} = \frac{1000 \times (1000 - 0)}{1000} = 1000m^2$$

$$CIL_{OFFICE} = \frac{R \times A \times I_P}{I_C} = 10 \times 1000 = \text{£}10000$$

For Site 2 (residential via office), the CIL calculations for stage 2 (i.e. office to residential) would be as follows:

$$A_{RESIDENTIAL} = \frac{C_{RESIDENTIAL} \times (C - E)}{C} = \frac{1000 \times (1000 - 1000)}{1000} = 0m^2$$

$$CIL_{RESIDENTIAL} = \frac{R \times A \times I_P}{I_C} = 60 \times 0 = \text{£}0$$

As such, for Site 2 (residential via office), the total CIL that would have been paid would have been as follows:

$$CIL_{TOTAL} = \text{£}10000$$

Summary:

As can be seen by comparing the two different " CIL_{TOTAL} " figures above, even though both sites start as an empty site and end up as a "Residential" building with area $1,000\text{m}^2$, Site 1 (directly to residential) **would** have been subject to CIL payments corresponding to the full $1,000\text{m}^2$ of resulting "Residential", whereas Site 2 (residential via office) would **not** have been subject to CIL payments corresponding to the full $1,000\text{m}^2$ of resulting "Residential".

Solution:

The above problem would be resolved by the alternative formulae that I've proposed at the end of this report. Under these alternative formulae, both of the above sites would pay **exactly** the same amount of CIL over the entire course of the process from starting as an empty site to ending up as a "Residential" building.

Significant problem #4:

Introduction:

The current formulae for CIL that are due to be introduced in April 2012 appear to be unnecessarily complicated. This will waste a significant amount of money around the country due to an increase in staff time, training, errors, disputes, appeals, etc.

Illustration of this problem:

Consider the following example of two sets of formulae, which are presented by the legislation in a format that makes them appear significantly different from one another.

Standard calculation (regulation 40) – for this the legislation presents the following **two** formulae:

$$CIL_R = \frac{R \times A \times I_P}{I_C}$$

$$A = \frac{C_R \times (C - E)}{C}$$

Social housing (regulation 50) – for this the legislation presents the following **three** formulae:

$$QUALIFYING_R = \frac{R \times N_R \times I_P}{I_C}$$

$$N_R = \frac{Q_R \times N}{Q}$$

$$N = Q - \left(\frac{Q \times E}{C} \right)$$

Although the above two formulae for the standard calculation appear significantly different from the above three formulae for social housing, the latter can be rearranged using algebra to form the following two equivalent formulae:

$$QUALIFYING_R = \frac{R \times N_R \times I_P}{I_C}$$

$$N_R = \frac{Q_R \times (C - E)}{C}$$

As can be seen from the above rearranged version, the formulae for the standard calculation have exactly the same format as the formulae for social housing, with just two minor differences in the actual terms used (i.e. “A” becomes “N_R”, and “C_R” becomes “Q_R”).

Summary:

As can be seen from the above example, the legislation presents the formulae for social housing in a format that is unnecessarily complicated. However, in my opinion there is a much more fundamental problem that **all** of the current formulae due to be introduced in April 2012 are unnecessarily complicated. Instead of formulae that are intuitive to understand and align with the aims of the legislation, the legislation presents formulae that are very difficult to understand and (as shown by the examples in the previous sections of this report) fail to align with the aims of the legislation. In particular, the way that a retained area of a particular use is deducted directly from the

resulting total area of that use, whereas a demolished and replaced area of a particular use is deducted (in a proportionate manner) from the total area of all uses, seems highly unintuitive, and will result in a number of unintentional side effects.

Solution:

The above problem would be resolved by the alternative formulae that I've proposed at the end of this report, which are far more intuitive to understand and easier to use than the current formulae for CIL that are due to be introduced in April 2012.

Proposed alternative formulae:

Introduction:

The basic concept of the alternative formulae below is very simple. You look at the existing site, and for each particular type of use on the site you multiply the area of that use by the rate for that use, which gives you the CIL value for that use. You then do the same for the proposed site. This gives you a total CIL value for the existing site and a total CIL value for the proposed site - the applicant then pays the difference.

Illustration of these proposed alternative formulae:

The following table illustrates how the proposed alternative formulae would apply to the example in the “**Significant problem #1**” section of this report – they would apply equally to both Option 1 (retention) and Option 2 (demolition and replacement):

Existing Use:	Rate:	Area:	CIL Value:
Office	£10	1,000m ²	£10,000
Retail	£25	0m ²	£0
Residential	£60	0m ²	£0
EXISTING TOTAL CIL VALUE:			£10,000

Proposed Use:	Rate:	Area:	CIL Value:
Office	£10	1,000m ²	£10,000
Retail	£25	0m ²	£0
Residential	£60	1,000m ²	£60,000
PROPOSED TOTAL CIL VALUE:			£70,000

In the above illustration, the applicant is changing the site from a total CIL value of £10,000 to a total CIL value of £70,000, and therefore pays the difference (i.e. £60,000).

Important notes:

Please note that the above alternative formulae are not a final product. The current formulae for CIL that are due to be introduced in April 2012 represent the work of (presumably) a central government team working for (presumably) months or years, whereas the above alternative formulae represent the work of one individual working for one day. As such, the above alternative formulae will need to be provided with definitions and additional measures to avoid their own potential flaws, just as any such formulae or new legislation needs further work before it's complete.

However, the key point is that, in my opinion, the above alternative formulae are based upon a solid mathematical foundation that can readily be adjusted to avoid potential flaws. In contrast, in my opinion, the current formulae for CIL that are due to be introduced in April 2012 are based upon a very unsound foundation that no amount of adjustments, quick fixes, additional definitions, etc, is likely to be able to correct. The end result of the latter is an unnecessarily complicated set of formulae that still contains very significant flaws.

It should be noted that the issue of “Social Housing” would be relatively easy to incorporate into the above alternative formulae. Indeed, you would just need to introduce an additional row with the use category “Social Housing” with either a reduced “Rate” or a zero “Rate”. Similarly, charitable uses could be incorporated into the above alternative formulae in a similar way.

It should be noted that the above alternative formulae do not include the equivalent of the “ I_p ” = “ I_c ” figures. To be honest, my personal preference would be to use a table where you look up the year that planning permission was granted against the year of commencement, and the table gives you the single adjustment figure, rather than looking up two individual figures that need to be entered into a formula.

It should also be noted that with the above alternative formulae you would need to set a minimum threshold for the difference in CIL value below which no payment would be necessary. This would avoid CIL charges for (say) standard commercial extensions, or (say) the conversion of a house into flats with or without standard residential extensions, etc. Finally, with the above alternative formulae it's possible for the total CIL value of the

proposed site to be less than the total CIL value for the existing site (e.g. in the case of a change of use from “Residential” to “Office”), in which case it would need to be clear that no CIL would be payable.

How these proposed alternative formulae would address the significant problems raised in this report:

When the above alternative formulae are applied to the examples in the earlier sections of this report, the results are as follows:

Significant problem #1:

For both “Option 1 (retention)” and “Option 2 (demolition and replacement)”, the above alternative formulae result in an identical CIL payment of £60,000, thus removing the significant discrepancy between the treatment of retained areas versus the treatment of demolished and replaced areas.

Significant problem #2:

For both “Site 1 (recently used)” and “Site 1 (recently unused)”, the above alternative formulae result in an identical CIL payment of £50,000, thus removing the significant discrepancy between the treatment of recently used sites versus the treatment of recently unused sites.

Significant problem #3:

For both “Site 1 (directly to residential)” and “Site 2 (residential via office)”, the above alternative formulae result in an identical CIL payment of £60,000 over the entire course of the process from starting as an empty site to ending up as a “Residential” building.

Significant problem #4:

The above alternative formulae are far more intuitive to understand and easier to use than the current formulae for CIL that are due to be introduced in April 2012.