PD&R Rule of Eleven:

PD&R protects the privacy of HUD-assisted households and HUD-insured borrowers by limiting the disclosure of information that could be used to deduce the identity of an individual or household. Specifically, PD&R's Rule of Eleven stipulates that no information describing the characteristics of any group of individuals or households numbering less than eleven can be disclosed by PD&R staff, contractors, grantees, or licensees; nor should the value of a cell of less than eleven be obtainable through the use of mathematical formulas (the use of percentages, subtraction, etc.) Any cell less than eleven must be suppressed or masked using a method approved by PD&R.

Definitions:

"less than 11", "10 or fewer", "between 1 and 10": unless otherwise specified, these phrases refer to numbers between 1 and 10 (inclusive), and exclude zero

"suppression": indicates that a value has either been deleted or replaced with a symbol indicating that the true value is unavailable for publication because it does not meet PD&R's disclosure threshold

"masked": indicates that a value has been replaced/disguised with another (similar) number in order to prevent inference of a cell less than eleven

Note: PD&R publishes the addresses of Public Housing and Multifamily projects, as they are considered a matter of public record and therefore the address by itself is not considered PII.

Rule of Eleven for Variables Describing Characteristics (including Categorial Variables):

1. **Primary suppression**: Any cell representing between 1 and 10 households should be suppressed.

   A. Example of suppressions for counts and percentages – Grey shading indicates a need for suppression:

N=60	Black	White	Asian	Native Am.	Hispanic
%	20%	20%	40%	5%	15%
n	12	12	24	3	9

   - Researchers can choose to restructure their tables (i.e. combine cells) to avoid the need to suppress small cells.

   B. Example of restructuring – Category 'Age 80+' violates the Rule of 11 and needs to be suppressed ('Age 60-79' would also require a complementary suppression, described in more detail below):

N=100	Age 0-18	Age 19-39	Age 40-59	Age 60-79	Age 80+
n	25	25	25	20	5

C. Example of restructuring – No suppression required:

N=100	Age 0-18	Age 19-39	Age 40-59	Age 60+	
n	25	25	25	25	

2. **Complementary suppression**: For any categorical variable (race, income band, age range, etc.) where a cell is derived and displayed as either a count or a percentage of the total number of households, complementary suppression and/or masking of additional cells may be required, as in the following common scenarios:

- If at least one cell within a given category (for example, "white" in the race category) is suppressed because it is between 1 and 10, then:
    - Any cell in the same category that is equal to zero should also be suppressed
    - Additional suppression of the next-smallest cell(s) is needed until the sum of the suppressed cells is greater than 10
        - If the values of the next-smallest cells are tied, one of the tied cells can be chosen at random to suppress, and so on, until the sum of the suppressed cells is greater than 10

D. Examples of complementary suppression – Grey shading indicates a need for suppression:

N=100	Black	White	Asian	Native Am.	Hispanic
n	30	30	20	10	10
n	10	80	5	5	0

- In order to prevent inference of a cell less than 11 through subtraction, any cell within a category that represents a number greater than or equal to N-10 households must be replaced with a masked count or percentage (for example, '>88' or '>88%'). Note: situations where a cell represents the entire total for the category (i.e. 100%) are exempt from this requirement.
    a. Counts: Replace the true value with '>x' where x is a count less than or equal to N-12
    b. Percentages: Replace the true value with '>x%' where x% corresponds to a number representing less than or equal to N-12

E. Examples of complementary suppression and masking – Grey shading indicates a need for suppression, and red font indicates a masked value used to replace the original value:

N=100	Black	White	Asian	Native Am.	Hispanic
n	10	~~90~~ (>88)	0	0	0
n	1	~~96~~ (>88)	1	1	1
n	0	100	0	0	0