



# **GSA Carbon Footprint Tool Scope 3 Commuter Survey Calculations & Assumptions**

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## Assumptions:

### Question #4/#7 Assumptions:

- When user selects "<1" for "# Miles", the calculations assume 0 miles.
- When user selects "201+" for "# Miles", the calculations assume 201 miles.
- When user selects "N/A" for "# Miles", the calculations assume 0 miles.

### Question #5/#8 Assumptions:

- When user selects "14+" for total number of people in Carpool/Vanpool, the calculations assume 14.
- Based on the user's selection for Question #5, the calculations make the following adjustments:
  - If user selects "N/A" people, the calculations change all "Carpool/Vanpool" selections from Question #4 to be "Car (Drove alone)".
  - If user selects "2" or "3" people, the calculations change all "Carpool/Vanpool" selections from Question #4 to be "Carpool".
  - If user selects "4" people (or more), the calculations change all "Carpool/Vanpool" selections from Question #4 to be "Vanpool".
- Based on the user's selection for Question #8, the calculations make the following adjustments:
  - If user selects "N/A" people, the calculations change all "Carpool/Vanpool" selections from Question #7 to be "Car (Drove alone)".
  - If user selects "2" or "3" people, the calculations change all "Carpool/Vanpool" selections from Question #7 to be "Carpool".
  - If user selects "4" people (or more), the calculations change all "Carpool/Vanpool" selections from Question #7 to be "Vanpool".

### Question #6 Assumptions:

- When user selects "Yes" to using the same method of transportation to get to/from work, the calculations assume the same method of transportation and the same mileage were used to go from work to home as the options that were selected in Question #4. (In other words, the mileage selected in Question #4 for each commute type is doubled.)



## Assumptions for “Primary Commute Method”

- To determine the “primary commute method”:
  - Add up the number of times each commute method was selected in Question #4 (and Question #7, if applicable).
  - If one commute method is selected the most number of times, it is that user’s “primary commute method”.
  - If multiple commute methods tie for the most selected and “Car (Drove alone)” is one of the options, then “Car (Drove alone)” is assumed to be the “primary commute method”.
  - If multiple commute methods tie for the most selected and “Car (Drove alone)” is not one of the options, then the first item in the ordered list is assumed to be the “primary commute method”.

## Calculations for Respondents

- If a user receives the survey and completes it, s/he is a “respondent”.
- For each respondent, determine the “primary commute method” (*See Assumptions for “Primary Commute Method”*).
- For each commute method for respondent, add up the total number of miles commuted via that method of transportation. (*NOTE: Be sure to include all Assumptions noted above to accurately account for number of miles adjustments, Carpool/Vanpool adjustments, and doubling mileage if necessary based on the answer to Question #6.*)
- For each respondent and each method of transportation, divide the total miles by 5 to calculate the daily mileage for each commute method for each of the respondents.
- Add together the daily mileage for each commute method for each respondent. This will result in the total daily mileage for each commute method for all respondents.

## Calculations for Non-respondents

- If a user receives the survey but does not complete it, s/he is a “non-respondent”.
- Due to self-selection bias (i.e. “green” commuters are more likely to complete the survey than those who drive alone), all non-respondents are assumed to:
  - Drive alone as “Car (Drove alone)” commuters; and
  - Commute the average “Car (Drove alone)” distance of all individuals who for whom “Car (Drove alone)” is the “primary commute method”.
- Multiply the number of non-respondents by the average “primary commute method Car (Drove alone)” respondent’s mileage to calculate the total non-respondent “Car (Drove alone)” mileage.
- Divide the total miles by 5 to calculate the total daily “Car (Drove alone)” miles driven by all non-respondents.



## Calculations for Extrapolation

- Add together the respondent and non-respondent total daily miles for each of the commute methods.
- Divide the population size (the total number of people in the agency) by the sample size (respondents + non-respondents) to determine the extrapolation factor.
- For each of the total daily mileage values for each of the commute methods, multiply the value by the extrapolation factor to arrive at the total number of miles driven by each commute method in the entire population.
- The resulting mileage will match the inputs required in the DOE FEMP workbooks.